THE AMERICAN JOURNAL *of* PSYCHIATRY

VOLUME 116
NUMBER 7
JAN. 1960

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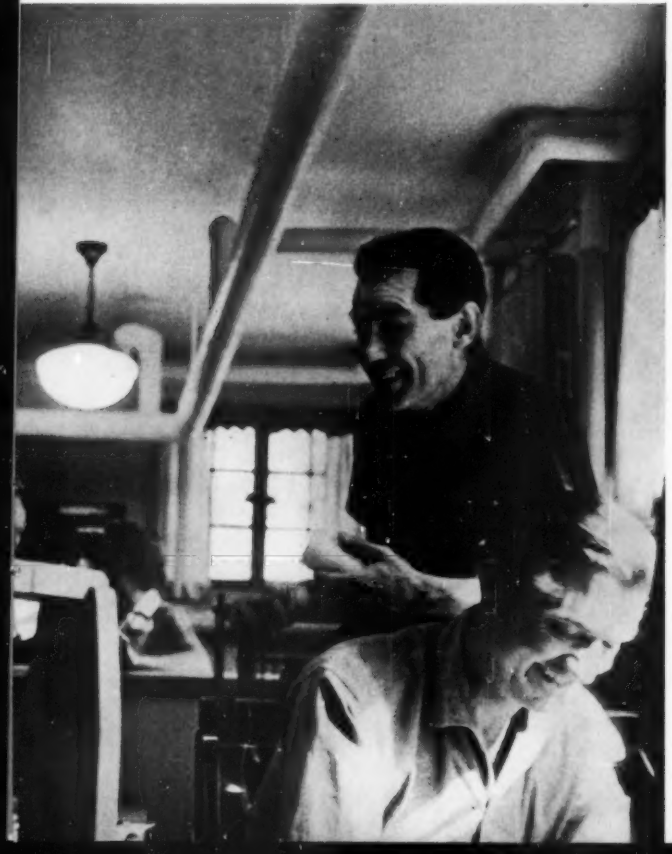

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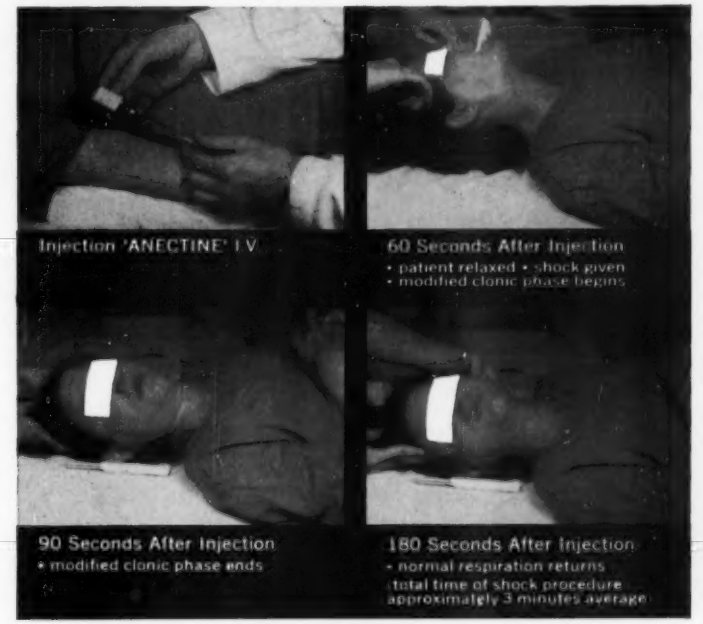
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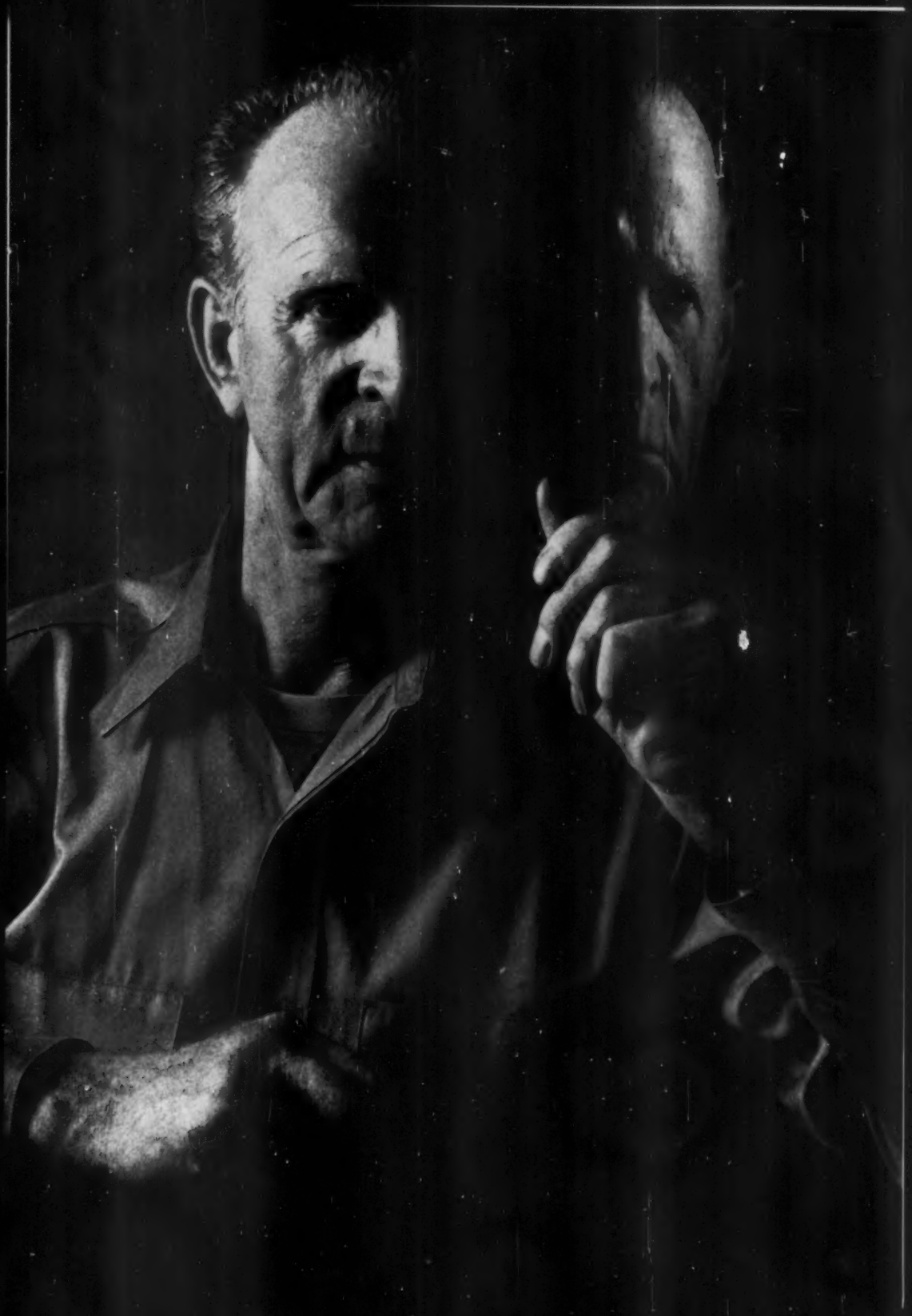

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REVIEW OF PSYCHIATRIC PROGRESS 1959

HEREDITY AND EUGENICS

FRANZ J. KALLMANN, M.D.[1]

Improved techniques for cultivating human cells and the newly achieved accuracy in identifying each of the 46 chromosomes in the normal diploid chromosome complement of man(13, 18, 19, 46, 58, 71, 72) opened a long-sought gateway to penetrating advances in medical (psychiatric) genetics during the past year. With the discovery of distinct chromosomal irregularities in a number of severe pathological conditions such as mongolism, congenital malformations and various disturbances in sexual development, a handful of diligent cytogeneticists began to reduce the long list of psychiatric disorders of hitherto unclear etiology. At the same time, much-needed explanations were furnished not only for earlier genetic hypotheses based on comparative twin and sibship data, but also for the results of diagnostically valuable sex-chromatin tests differentiating between the cells of chromatin-positive and chromatin-negative individuals(4, 26, 44, 52). The methodological principles and conceptual implications of both types of procedure were expertly reviewed in a great variety of symposia and publications dealing with the intricate technical problems of behavioral and population genetics (5, 9, 14, 25, 32, 38, 39, 41, 51, 61, 65, 66, 67, 68, 69, 70, 75).

The exact nature of the disarranged chromosome configuration in mongolism, resulting from non-disjunction of chromosome 21 and conclusively anticipated by serial twin studies, was identified in France by Lejeune *et al.*(46, 47, 69) and immediately confirmed in England by Ford, Jacobs and others(35, 66), in Sweden by Böök *et al.*(8), and in the United States by Puck's research group(66, 70). Mongoloid patients were thereby classified as carriers of 47 chromosomes with a triple chromosome system (two chromosomes 21 from one parent and only one from the other). The unique opportunities offered by this primary trisomic condition for quantitative biochemical studies of the products of genes located on the given chromosome were recognized everywhere.

Equally promising approaches to the construction of a human chromosome map were uncovered by the identification of irregular sex chromosome complements in chromatin-negative females with ovarian dysgenesis (Turner's syndrome characterized by an XO sex chromosome formula and a total of 45 chromosomes due to the loss of a Y chromosome), in chromatin-positive males with testicular dysgenesis, eunuchoid symptoms and an XXY sex chromosome formula (Klinefelter's syndromes with a total complement of 47 chromosomes), and in a sexually underdeveloped superfemale with three X chromosomes(21, 22, 36, 37, 64, 70). Hence, the Y chromosome in man proved to be male-determining, while a complement of 48 chromosomes, with an extra X chromosome and an extra chromosome 21, was found to produce the clinical features of both mongolism and Klinefelter's syndrome(20). Another unusual case of disarranged chromosome structure (45 chromosomes with translocation of autosomal fragments) was observed in a mentally defective boy with delayed physical development and multiple bony deformities of the vertebral column(73).

In line with the theory that gross defects in the larger chromosomes would probably be lethal, it was to be expected that the search for quantitative chromosomal disarrangements would be futile in such conditions as schizophrenia or Wilson's dis-

[1] 722 West 168th Street, New York 32, N. Y.

ease assumed to be due to the effect of major mutant genes rather than to nondisjunction or translocation of entire chromosomes. Other reported "negatives" included Apert's and Marfan's syndromes, anencephaly, and chondrodystrophy(70).

An important contribution to the understanding of the role played by DNA (deoxyribonucleic acid, the ever-present principal component of chromosomal material) in disordered nuclear activity (synthesis of proteins and nucleic acids) was the observation by Allfrey and Mirsky(1, 70) that the phosphoric acid groups dotting the surface of DNA molecules carry negative electrical charges. Following removal of DNA from isolated nuclei, neither protein nor nucleic acid was synthesized, and replacement by electrically neutral or positive molecules failed to reactivate the nuclear chemistry. However, a depleted nucleus was seen to return to normal function when its original DNA content was restored or when it was replaced by another large electrically negative molecule.

The newly accentuated need for adequate books on medical genetics, embodying recent advances in biochemical and cytological genetics, was met by a growing output of specialized textbooks. The biochemical deficiencies detectable as concomitants of mutant gene changes through some faulty link in protein synthesis were competently dealt with in the books of Anfinsen(2), Butler(11), Hsia(31), Lamy *et al.*(45) and Zamenhof(76), and in special chapters and research reports by Abood, Celler and Hoffer(24), Childs(12), Corey and Horowitz(33), Gutman(27), Kety(42), Mautner(48), Racker(53) and Rhoads(55). Some of the long established textbooks appeared in considerably revised editions, including those of Roberts(56), Sinnott *et al.*(60) and von Verschuer(74).

Problems of cytodifferentiation were explored by Hayashi(30) and the contributors to a conference report edited by Rudnik(59), while recent discoveries in the genetic analysis of homograft incompatibility were reviewed by Billingham(7), Brent (10), Medawar(49) and others. Of the multiple histocompatibility genes (15 or more) determining the antigenic substances responsible for eliciting homograft reactions, the one occupying the so-called H-2 locus seemed to be particularly important. Some of the 10 alleles situated at this locus were shown to produce "transplantation antigens so powerful that hosts which differ from their donors simply at this one locus—that is, with respect to a single antigen—may destroy a homograft within less than two weeks"(7). The evolutionary aspects of human behavior and population structure were reevaluated by Dunn(16), Fischer (17), Roe and Simpson(57) and Sheppard (62).

In the clinical and demographic areas of psychiatric genetics, 4 well-documented research reports were added to the Scandinavian series of monographs; namely, those by Arentsen and Strömgren(3) on a nationwide cross-section investigation of Danish mental hospital patients, with detailed prevalence, morbidity and disease expectancy rates for the various forms of mental illness; by Hallgren(28) on 177 Swedish cases of retinitis pigmentosa combined with congenital deafness; by Kjer(43) on 19 Danish families with 249 cases of infantile optic atrophy which seemed to follow the dominant mode of inheritance; and by Stenstedt(63) on a study of the parents and siblings of 307 patients diagnosed as involutional melancholia "according to Henderson-Gillespie's usage of the term." In Hallgren's survey it was noted that nearly one-half of the affected individuals were either mentally retarded or psychotic, with the majority of the latter showing "a schizophrenia-like symptom picture." The frequency of psychiatric or neurological disorders among their parents and siblings was not found to be higher than that in the general population, but that of matings between first cousins among the parents approximated a rate of 17%.

Stenstedt's data on the genetic aspects of "endogenous affective disorders in later life" were based on patients who had "pure depressions without conspicuous paranoid symptoms." The study yielded an increased morbidity risk figure of 6.1% for the parents and sibs of the index cases, and no evidence for "a genetic connection with any other mental diseases." However, the investigator used the classification of schizophrenia "in a fairly narrow sense," while he subdivided

the affective disorders of the involutional period into psychogenic depression, manic-depressive psychosis and involutional melancholia, combining the two latter categories under the label "endogenous affective disorders." By defining involutional melancholia as "a kind of endogenous depression in later life," the analysis served to confirm a technical peculiarity that had become apparent in previous family studies of this etiologically heterogeneous type of psychosis; namely, the fact that the psychiatric features of the personal histories and family backgrounds to be analyzed tend to depend on the system of clinical classifications used. This technicality was stressed in several comprehensive reports which dealt with classificatory concepts of psychiatric genetics (6, 15, 40, 54).

The long list of other pertinent contributions to the understanding of genetic and eugenic population problems included several books and symposia concerned with the biological, social and psychiatric aspects of fertility, family planning, and control of population growth (23, 29, 34, 50, 67). One of the most interesting findings in the study of Freeman *et al.* (23) on the attitudes of 2,713 white, married women aged 18 to 39 in 1955 was that the majority of couples in this group had a fairly specific idea of how many children they wanted. They used contraceptives to space their children and to prevent conception when they had the desired number, and they were reasonably successful in limiting the number of children, but not always in spacing them according to their plans.

The importance of cytogenetics in current research programs was reflected by the fact that the 1959 Nobel Prize in physiology and medicine was awarded to two American biochemists, Severo Ochoa and Arthur Kornberg, for discoveries related to the synthesis of ribonucleic acid (RNA) and deoxyribonucleic acid (DNA), the two key chemicals in the reproduction of hereditary qualities. While Ochoa found a bacterial enzyme capable of synthesizing RNA in the test tube, Kornberg's contribution was the discovery of an enzyme promoting DNA production from smaller molecules.

The 1959 Thornton Wilson Prize in preventive and genetic psychiatry was shared by Lauretta Bender and Alfred Mirsky (70).

Altogether, 1959 was a very productive year for medical genetics, and held glowing promises for the future.

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NEUROPHYSIOLOGY, CHEMISTRY AND ENDOCRINOLOGY

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Advancing concepts in neurophysiology (1, 2) usually discussed under the heading of the non specific or reticular complex merit review, particularly in relation to possible application to psychiatry. The reticular or non specific system is better defined on a physiologic than on an anatomic basis. Magoun calls it a central transactional core between the strictly sensory and motor systems of classical neurology. It can be considered anatomically as similar to the diffuse and infinitely complex fiber systems which characterize the brains of lower vertebrates as Herrick described than in amphibia. These relationships have been further elaborated in phylogenetic development. There are many groups of cells in the brain stem and particularly in the midbrain which relate to this complex. These neurons receive collateral branches from the ascending sensory tracts, especially the spinothalamic and spinocerebellar. The proprioceptive or medial lemniscus system gives few collaterals to these cells. On the other hand, the trigeminal sensory nuclei contribute heavily to the sensory inflow. Central areas of the midbrain tegmentum constitute a major tremination point for ascending reticular pathways (Nauta and Kuypers). At the caudal border of the thalamus the non specific pathway bifurcates, the ventral portion continuing into the subthalamic region and the dorsal turning into the intralaminar cell groups of the thalamus. An extensive midbrain region projects to the hypothalamus, the preoptic area and the medial septal nucleus.

Sheibel and Sheibel illustrated that the activity of a single reticular cell may be influenced by stimuli from all the extremities, smell, sound, vagus nerve, cerebellum and cerebral cortex. The reticular cells appear to integrate a number of sensory inputs rather than maintain specificity. These authors studied the structure of the cells. Their axons are of enormous complexity, and branch in cranial and caudal directions. They give off numerous collaterals along their entire course including terminations in the sensory nuclei of the cranial nerves. The thalamic reticular formation appears as a sheet-like continuation of the mesencephalic tegmentum, hugging the internal aspect of the internal capsule. Its structure makes the possibility that it has a filtering function not unlikely. The midline nuclei of the thalamus give rise to axons which influence the activity of the cerebral cortex. The hippocampus and amygdala as well as the neocortex influence reticular activity just as they are influenced by it.

It is established that influences from the brain stem reticular system extend caudad to control sensory activity and patterns of tone. Also, influences extending upward from the midbrain are capable of arousing or awakening the animal and changing the brain wave pattern from a sleeping to a waking one. If the brain stem is transected at the upper midbrain level the animal never awakes. Now evidence is accumulating that the diencephalic portion of the reticular system filters out unimportant stimuli and may thus direct attention. Sharpless showed that a selected musical tone will arouse a sleeping animal and produce significant changes of brain wave pattern. However, repetition of this tone will cause this response to disappear. Widespread cortical ablation including much

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more than the auditory areas of both hemispheres will not prevent the cat from learning not to awaken to a repeated tone, while awaking promptly to a novel one (Jasper). The function of the reticular system in normal adaptive behavior may be in the nature of a prevention of general arousal to all stimuli with a control of selective responsiveness to significant stimuli.

PLEASURE AND PAIN INDUCED BY SELF STIMULATION OF THE BRAIN

Experiments in which an electrode is chronically implanted in the brain and the circuit is arranged so that the animal can deliver shocks to himself at will have elicited results of extreme interest to psychiatrists. Stimulation of certain areas in the basal forebrain elicit feelings that are rewarding, positive or enamoring. Stimulation of other areas are punishing, negative and alienating (Brady). Different portions have quantitative importance. Placing them in the order from most to least rewarding in the monkeys they are, basal tegmentum of the mesencephalon, ventromedial nucleus of the hypothalamus, intralaminal system of the thalamus, septum, upper fornix and putamen. Animals avoid the electric shock when electrodes are placed in certain lateral and posterior parts of the diencephalon and in lateral parts of the tegmentum. The positive rewarding effects can be achieved within a broad system of structures whereas the negative effect is much less extensive.

When electrodes are in certain positive positions animals stimulate their brains more than 5,000 times an hour. Olds believes that the positive effect is derived from stimulation of cells actually involved in hunger, sexual and other reward processes. The rewarding experience often increases the hunger drive. Brady found that the rate of bar pressing in caudate stimulated animals is greatly reduced by feeding to satiety just prior to testing. In certain male animals self stimulation disappeared almost completely after castration, but returned to normal after the androgen level was restored. Others have suggested that the positive effect is of a convulsive nature (Doty). Porter obtained abnormal spike and wave patterns during self stimulation.

Brady showed that animals would tolerate painful stimuli in order to obtain the positive self stimulation response. A conditioned emotional response of the fear or anxiety type failed to appear when the animal was pressing the lever for brain stimulation reward. A monkey receiving a rewarding stimulus has a facial expression of preoccupied relaxation. In general animals being stimulated in these regions are more tractable and have a more affectionate attitude toward the observer. An animal stimulated in the area of negative reward makes an effort to avoid the response and appears to be frightened or in pain. If an animal is left on this circuit for 8 hours there are deleterious after effects, irritability, biting and refusal to eat. This can be reversed by placing the monkey on a rewarding circuit. Andy reported that self stimulation of the amygdala and septal regions raises the pain threshold. Sem-Jacobsen stated that stimulation of the ventromedial region of the frontal lobe relaxed psychotic patients. Sharpless pointed out that the areas most effective in producing positive reinforcement are connected with the ventral branch of the bifurcating reticular activating system.

CHEMISTRY

There is considerable interest in the site of action of sedative, tranquilizing and stimulating drugs within the nervous system. Opinions differ and must be accepted provisionally. Bradley showed that cholinergic drugs do not appear to act on the reticular activating system of the brain stem but more diffusely and on a mechanism which is not concerned with behavioral changes in terms of wakefulness and sleep. This may be the diffuse thalamic projection system. Thus physostigmine, a cholinergic drug, produces a brain wave pattern of wakefulness without alerting the animal. Conversely, atropine, an acetylcholine antagonist produces a brain wave pattern of sleep even though the animal is alert. Both amphetamine and d-lysergic acid diethylamide (LSD25) give a brain wave pattern of wakefulness and the animals become alert and excited. With LSD25 the alerting appears to be dependent upon external stimuli from the en-

vironment. Chlorpromazine induces drowsiness and indifference with a decrease in response to auditory, visual and tactile stimuli. After the midbrain is transected, amphetamine no longer has any effect on behavior or electrical activity suggesting that it acts on the reticular system. It is possible that the effect of amphetamine may be related to its sympathomimetic action since adrenalin is highly concentrated in this region. The effect of LSD25, on the other hand, is lost after section between the cord and brain stem. The LSD25 may exert its influence on receptors more closely related to the collaterals entering the reticular system from the great afferent pathways. Thus the drug may sensitize the reticular system to external influences rather than excite it directly. Chlorpromazine produces only a moderate rise in threshold to responses elicited on stimulation of the reticular formation. At the same time the preparations become unresponsive to afferent stimuli and the latter no longer produce arousal. Phenobarbitone, on the other hand, exerts a depressive reaction on the reticular formation. Blocking of arousal to afferent stimulation may be a more specific action of this drug and may be due to its effect on receptors related to afferent collaterals entering the reticular formation.

Killam and Killam found that chlorpromazine markedly elevates the threshold for behavioral arousal following thalamic stimulation. The action of the drug in increasing the filtering of sensory input may contribute to the failure of behavioral arousal. The responses in the reticular system to evoked activity from the peripheral nerve are enhanced by chlorpromazine as are the inhibitory effects of stimulation of the reticular system on responses in the auditory system. They concluded that chlorpromazine enhances the controlling or filtering effects of the reticular formation on lateral sensory pathways.

ENDOCRINOLOGY

Hume found that there was a rather specific and separate localization in the hypothalamus for the control of the anterior pituitary secretion of corticotropin, thyrotropin and gonadotropin. The thyrotropin and corticotropin areas overlap and are located in the anterior portion of the median eminence and the post-optic areas. The control of the gonadotropic hormone is in the posterior limb of the pituitary stalk and well localized to a small zone. Hume suggested that separate cell bodies, separate fiber tracts and separate portal veins connect with separate areas in the anterior pituitary controlling the secretion of these three substances. Fisher induced sexual activity in rats by stimulation of the lateral preoptic area. Sawyer presented evidence that the reticular activating system in the midbrain tegmentum and basal diencephalon has important implications in neuroendocrine function. Drugs or lesions which depress or destroy the reticular function inhibit activation of the pituitary ovulating hormone. Spontaneous ovulation is similarly controlled, at least in part, by the reticular formation. Harris postulated that endocrine function is affected in a major way by extralemniscal afferent fibers of many modalities influencing the hypothalamus to regulate both lobes of the pituitary gland.

Mason studied the neural control of the pituitary-adrenocortical response. Hypothalamic stimulation produced a marked hormone response. During stimulation these animals showed growing uneasiness, increased alertness and usually refused food. Similarly stimulation of the amygdala induced maximal rates of steroid rise. Minimal behavioral changes were associated with stimulation of the amygdala. A long period of hippocampal stimulation produced no change in the plasma steroid. However, samples drawn 24 to 48 hours later showed a marked suppression to levels well below the normal curve. Mason plotted the normal downward diurnal variation in corticosteroid levels. The peak in both blood and urine corticosteroid levels is in the morning and there is a steady downward trend during the remainder of the day until early morning when there is a sharp rise. Then, in monkeys he interrupted the outflow from the hippocampus either by removing it or sectioning the fornix. After this operation the day and night corticosteroid levels became roughly

equal. He concluded that the hippocampus-fornix system appears to be involved in the maintenance of the normal diurnal rhythm in ACTH secretion. He postulated a cyclical mechanism from the reticular formation and hypothalamus up to the limbic system and back again, acting much as a negative feedback or dampening influence on the hypothalamus and reticular formation.

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ELECTROENCEPHALOGRAPHY

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The number of national and local EEG societies has steadily increased. The *Journal of EEG and Clinical Neurophysiology* has published during the past year proceedings of the American, Austrian, Czechoslovak and Polish, Danish, Dutch, English, French, German, Italian, Norwegian, and Swedish societies. A perusal of these proceedings gives a fair idea of the progress accomplished during the past year as their publication is less delayed than the ever-increasing number of detailed articles.

BASIC STUDIES

Genesis and Significance of the Normal and Abnormal Bioelectrical Activity: The problem of auto-rhythmicity of the nerve cells was submitted to ingenious tests. If the rhythmic electrical activity of a cell were due to an intrinsic mechanism controlling the interval between successive electrical pulses, then the following will occur. An artificial intracellular stimulus, applied through a microelectrode, would reset the rhythms in such a way that the spontaneous pulse following the stimulus will be delayed. The delay will be determined by the interval characteristic of the original rhythm. This is what occurs in an auto-pulsating tactile fiber isolated from the posterior paw of the cat. This was not found, however, in the isolated spinal cord cells(68), where the spontaneous rhythm continues unperturbed despite the additional stimulus. Essentially the same results were found in the cortical neurons of the dog's cruciate gyrus, suggesting that the additional intracellular stimulus does not invade the structures responsible for the cells' original rhythmic activity. The synaptic bombardment is probably at least as important in determining the cells' pattern of firing(47). On the other hand, the frequency distribution curves of the rhythms of discharge of cortical cells, rather than the mean frequency of this discharge, were found to be sensitive indicators of physiological changes produced in the remote area of the cortex(7). Direct cortical responses resulting from the electrical stimulation of the cortical surface has been classically attributed to apical dendrites. Evidence was presented that this conclusion may be premature as the same type of responses may be obtained in the rabbits' hippocampal pallium where the orientation of the pyramids is opposite to that of the neocortex(33). Slowly propagating slow evoked potentials were recorded in the fornix-fimbria system suggesting further caution in interpreting all such potentials as originating in apical dendrites(38). Microelectrode analysis of the cortical neurons during experimental epileptic attacks showed a marked increase of the intrinsic frequency of firing(18).

Rhythmic sensory impulses were presented to subjects who had to indicate the cessation of the stimuli. Their reaction times were found to be a function of the frequencies of stimuli except that a non-linear perturbation was observed at stimulus frequency near 10 c/sec. This observation strengthened the hypothesis of the role of alpha activity as a neuronic shutter(9). The importance of the local cortical circulatory homeostasis was considered(32) in the genesis of the three per second spike-and-

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wave activity. As to the delta rhythm, it was considered as indicating the presence of a functionally isolated cortex. Its relatively high incidence in the frontal regions is explained by an easy alteration of the tracks leading to this cortex(64).

Integrative Functions: A colloquium on sensory integrations was recently held in France. In cats, a transection of pons just rostral to the trigeminal rootlets, is followed by a low voltage, fast electro-cortical activity; while, if a transection is carried out more rostrally, a synchronized EEG cortical pattern is observed. This observation suggests the existence of an EEG synchronizing, and possibly sleep inducing influence of the structures located in the caudal brain stem(3, 13, 48). Thus, another reticular regulating system is being investigated. The presence of an alert EEG in certain patients in coma are explained on the basis of the above findings in the mid-pontine preparation(39). Convergence of stimuli originating in different sensory analyzers upon single cells of the basal nuclei(2) was also disclosed suggesting a participation of these structures in the sensory integration. Positive (pleasurable) and negative (adversive) effects of the electrical stimulation of the human brain were described. However, the mapping of these areas was difficult as either effects were observed at distances of less than half of 1 cm(61) and, therefore, are not as clearly distributed as in the lower mammals. A very effective locus for penile erection of the squirrel monkey lies in the medial preoptic region, rostro-ventral to the anterior commisure (42). Stimulation of the supracallosal mesial cortex in unanesthetized conscious cats produces bizarre behavior patterns and autonomic dysfunction of psychomotor-like character(30). A case of high amplitude vertex spikes in a post-traumatic aggressive behavior disorder was reported(43), thus correlating with the above observation.

Conditioning: Mechanisms of Uchtomsky's dominance response should be suspected if precocious or too stable conditioned responses are observed in certain patients. In one of them "conditioned" responses appearing after the third trial of photic stimulation were found from then on following a great variety of different sensory stimuli which were not previously associated with the photic stimulation; a relationship to obsession and hallucinations is discussed(45). Frequency specific conditioning was elicited using photic stimulation of a frequency at or near the subjects' alpha rhythm. The presence of a conditioned response was ascertained by quantitative analysis of the record taken just before and just after the conditional stimulus(4). See also(29, 65).

CLINICAL STUDIES

Stimulation and Activation

Photic Stimulation: In 37 patients with unilateral brain tumor lesions, fast rhythms could not be followed on the side of the lesion(16). Evoked occipital potentials are not as pronounced when the subject is very alert as when his attention relaxes(58). The diagnosis of hemianopsia is facilitated by electro-oculographic techniques(35).

Acoustic Stimulation: Intra-cerebral microelectrode recording of responses to repetitive clicks in human patients from a relatively wide area of the brain, including the insular cortex, reveals on and off effects as well as driven responses. These 3 different kinds of responses seem to reflect the activity of different systems as they show differential characteristics(11). A constant tone elicited for a period of 15 seconds at intervals of 30 seconds modifies the frequency of brain waves; it activates epileptic discharges in patients (children are more susceptible than adults) (36). On the other hand, an application of clicks (one per second) for 6-30 minutes elicits "drowsy patterns"(34).

Hyperventilation: With increasing age, slow activity induced by hyperventilation shifts from the occipital to the anterior region in adolescents and young adults; in the older age groups a reverse shift is observed (toward the parieto-occipital region)(26). Sleep patterns were observed in certain patients during hyperventilation (54). This is particularly frequent in narcolepsy(8, 55). A hyperventilation response is very prominent in tetany(25, 50, 56). EEG studies demonstrated that in some individuals an apparent normal blood sugar level constitutes a relative cerebral hypo-

glycaemia(74). A quantitative study of voluntary hyperpnea was presented(63).

Sleep: In one patient complaining of intractable insomnia, the absence of memory of sleep was ascertained by EEG. In another patient, the diagnosis of hysterical hemianesthesia could be made by applying tactile stimuli during sleep(60).

A plea for caution was made in the clinical interpretation of activation techniques as a result of a study of a normal population (66).

Pharmacology

Increased sychronization was found with chlorpromazine, promazine, and reserpine (slow waves); meprobamate (fast waves); iproniazid, imipramine (no frequency shift). Desynchronization was found with diethazine, benactyzine, Win-2299, and LSD-25(21). A followup study concerning pentothal activating techniques in psychiatric patients was published: anti-depressants elicit patterns (fast beta and theta waves) which are attenuated or suppressed by the tranquilizers. Thus, the antagonistic effects of these drugs are considered(27). Diminished reactivity to auditory and visual stimuli was observed under the influence of chlorpromazine(17). However, specific visual evoked responses were not affected, while blinking artifacts were(10). Iproniazid increased nestling and attacking behavior and decreased sexual activity in monkeys; while EEG generally showed an increase of slow activity and greater spread of evoked after-discharges (75-100 mgs.) (14). Deaner which effects behavior disorders in children elicits fast activity(51).

Vascular Lesions

An increasing number of workers are reappraising the localizing significance of a focal depression and of the delta activity in subdural hematomas(20, 46, 69). Also a great number of workers are using a controlled unilateral carotid compression for the diagnosis of carotid occlusions(23, 40, 41, 44, 73; see also 22, 53).

Behavior Disorders and Psychological Correlations

Unilateral and bi-occipital slow activity was related to behavioral and epileptic disorders in children(5, 12). However, temporal localization of abnormality in behavior disturbances in children(24, 71) and adults(57) was also stressed. In retarded adolescents and adults the relationship between the alpha index and mental age is not simple; irregular tracings correlate with a poor psychomotor efficiency (49). If one plots the number of delta waves on a vertical axis and the number of beta waves on the horizontal axis in a standardized sample of the temporo-occipital EEG of normal adults, EEG groupings may be defined. They correlate with the durability, profoundness, etc. of feelings and strivings. Increase in beta activity is associated with vehemence, mobility, and velocity of emotions(72).

The level of CSF protein correlates with the excessive amounts of fast and slow activity in the EEG's of patients with schizophrenia or epilepsy. It also correlates with incidence of behavior abnormalities and/or of seizures. After an anastomosis effected by silicone rubber tubing connecting the temporal horn of the lateral ventricle to the subdural space, thus, diluting the protein content of the CSF, the seizure incidence and behavior abnormality were improved(19).

MISCELLANEOUS

Several authors found non-specific EEG abnormalities in muscular dystrophies(59, 70). This suggests that the latter represent a much more diffuse process than previously accepted. A sharp wave pattern was described in Jakob-Creutzfeldt's disease(1). Hyper-synchronous, 3-5 per second waves were frequently found in Friedreich's ataxia (37). Bursts of generalized delta waves preceded tonic manifestations of "cerebellar fits"(28). Sudden bodily jerks upon falling asleep are not associated with paroxysimal electrical discharges(52). An interesting case of epileptic nystagmus was described (31). A relatively high percentage of abnormalities were found in aviation personnel(15, 67). It might be related to the stressful conditions of their activities(62). A survey of RCAF new entry pilot candidates shows that EEG has not yet proved of value in predicting success in flying training(6).

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CLINICAL PSYCHOLOGY

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This year and the last mark the date when, to the several schools which have so far determined the views on psychological man in this country, a new one has been officially added. Existentialism for some time has had considerable influence on psychological and psychiatric thinking in Europe—shown for instance by the fact that the International Congress of Psychotherapy, meeting in Barcelona in 1958, adopted this ideology as its major topic. Thus it became an interesting question in the history of ideas and their relationship to cultural idiosyncrasies when existentialism would make its entry into this country. A growing interest in what people in other places are doing about man's uneasy estate and psychological discomfiture, and the consequent increase of communication seemed to favor acquaintance with an ideology now, even though the latter is decidedly alien to the intellectual temper of this country. Conversely, the overweening force of a pragmatic empiricism which had not changed much since de Tocqueville characterized it, and a profound wariness of speculative theories made it unlikely that existentialism would cut much of a swath here. What room there is for a comprehensive theory of motivation, character and adjustment, had been preempted by psychoanalysis. The very fact of certain similarities between the two, a kinship of orientation in spite of all the obvious and profound differences, also seemed to militate against the advance of existentialism(13, 2). (Both psychoanalysis and existentialism stress drives and anxiety, and the importance of the irrational, as well as subjective experience and the private world of the individual which make introspection the basic method. They have a global view of man, and emphasize "themes." Both hold as a fundamental premise that it matters much more for the individual what an event *means* than what it might objectively be classified to *be*.)

The progress of existentialism at this date is therefore something of an historical surprise. Whatever the explanation may be, both for delay and for belated success, the first textbook of existentialist psychology and psychiatry (by May, Angel and Ellenberger(11)) represents a notable contribution. This book gives an historical and philosophical account of the ideology as well as of its application—as *"Daseinsanalyse"*—to the problems of psychopathology by presenting several case studies. After the reader has begun to get used to an unaccustomed frame of reference and a peculiar terminology, he may well acknowledge certain general impressions. Existential psychology seems to be engaged in aspects of conduct which at times seem surprisingly close to those with which psychoanalysis has been concerned. Existentialists seem to prefer the dramatic sweep of issues large as life and death. All the world's a stage, and they like theirs to be no less than the world. At times existentialists appear to be disinterested to the point of disdain in the ordinary events of adjustment to which psychoanalysis has taught us to pay close attention. They often seem more at home in the world of transcendental accomplishments and failures than among the vital banalities of the body, its early crises and conflicts, and the self-made clichés which stem from them. On the other hand, existentialists also have learned to think in terms of a more inclusive image of man, and bring to its study a great deal of subtlety and imagination. Their quest for the meaning of man's collective, and of his private world, and their extensions of the traditional scope of that inquiry could be studied with profit by other schools. In summary, existentialism seems to me to neglect dimensions of conduct, the relevance of which can no longer be questioned; it cultivates others, and to comprehend them has concepts which are challenging and stimulating.

Those interested in a more detailed scholarly account of existentialism, not only as a school, but as a perennial train of philosophical thought, will appreciate Bar-

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rett's monograph(1) and Kaufmann's source book and commentaries(8).

While autonomous in his fusion of various trends of contemporary thinking with the abiding stimulus of psychoanalysis, Schachtel's work(12) clearly shows the influence of existentialist and phenomenological ideas. He stresses especially the activity-seeking qualities of the organism as against the tension-release paradigm of psychoanalysis and of most learning theories. Schachtel limits himself to "emotion, perception, focal attention, and memory," but in conjunction with them provides one of the best syntheses of present-day personality theory in his notable essay on *Memory and Childhood Amnesia* which was first published a number of years ago and now forms the concluding chapter of this book.

Erickson's biographical study of Luther (5) shows the capacities of psychoanalytic ego psychology for illuminating a complex personality together with the issues which affected him and which in the end he himself altered profoundly. The book succeeds both in demonstrating the author's theory of identity which also involves the images and ideologies under the auspices of which identity is formed; and the genesis of a (religious) ideology relative to the genesis of a personality. Erickson's book also shows again how much the psychological interpretation of an historical figure may add to the understanding of the past, *if* it is informed by sensibility and knowledge of the period. Historical personages have the disadvantage that our knowledge of them is always fragmentary; although it is good to remember how limited our knowledge is even of the personalities we have had a chance to study directly and extensively. An historical figure, however, has one great advantage in spite of all methodological arguments: *his* course is completed and the lines of sequence and development in his life can sometimes be made more clear than in any immediate subject.

The problem of identity which, due mainly to Erickson's work, has become an important psychological concept, is treated by Wheelis(19) with a view to presenting problems of identity, especially in psychotherapy. The social (interaction) and sociological aspects of identity are discussed in books by Goffman(6) and by Strauss(16). The methodological problems inherent in the psychological interpretation of history were treated by Wyatt and Willcox in a framework of interdisciplinary cooperation (20).

Among the numerous books of potential interest to the reader of this journal are: a contribution to the theory of therapeutic success by Melanie Klein(9); a survey of one of the newest branches of psychology, linguistic psychology, with impact on psychopathology, by Roger Brown(3); a study of aggression in animals, by J. P. Scott(15) which should be of importance for any theory of aggression in man; an exceptionally well written text on adjustment by Roger Heyns(7), without theoretical dogma and based equally on experimental data and on practical sense; and a *Psychology of Early Childhood* by Landreth(10) with emphasis on genetic and experimental findings.

Finally, among the contributions more specific to clinical psychology should be mentioned: Wechsler's *Measurement of Adult Intelligence* which came out in its fourth, somewhat modified edition(18); a book about the diagnostic and prognostic cues to suicide by Schneidman and Farberow(14); a survey of what is known on the psychology of careers by Super and Bachrach(17); and finally, a comprehensive dictionary of psychological and psychoanalytic terms by English and English(4) which may fill a longstanding gap in the encyclographic aids of psychology.

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CLINICAL PSYCHIATRY AND PSYCHOTHERAPY

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As shown in the reviews of several former years, schizophrenia remains the most prominent topic for research and clinical reporting since it is universally recognized that the solution of this particular mental problem will constitute a major contribution to science, psychiatry, and economics. An overall picture of the disorder has been attempted by Professor Henri Ey(1) of France who presents a clinical and logical analysis in terms of the unity and diversity. The study is based on 366 cases of schizophrenia studied for some 15 years and reveals some interesting suggested definitions of several varieties in the group. In a study of the psychology of schizophrenia, Rashkis and Singer(2) reconsider the "double bind" theory of schizophrenia from the viewpoint of conflict, learning, and organizational theories. Their formulations are capable of being submitted to experimental testing.

A controlled experimental study of simple and choice reaction times in schizophrenia was reported by Benton and co-workers (3). They found that "impairment in the performance of simple, high speed tasks appears to be a salient behavioral feature in many cases of cerebral disease and schizophrenia. Although they propose that this finding might be interpreted in different ways, it might be that the schizophrenic patients showing marked retardation in simple reaction time constitute a "special brain damaged subgroup." Boverman(4) in a paper on rigidity, chronicity, and resistance to human intervention, points out that "in some respects" patients with this disorder are "highly resilient and very responsive to human intervention." A phenomenological and statistical study of dreams and phantasies as they are found in the "natural history" of schizophrenia by Cappon(5) presents some interesting and informative material, and Bion(6) has described some detailed observations of hallucinations and the results that followed in the analysis of a schizophrenic patient. The mental mechanisms involved are discussed. Additional studies of this kind should be important and rewarding.

An extensive paper dealing with a study of 5 hospitalized families, each with a

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schizophrenic member, is presented by Brodey(7) of the Family Study Section of the National Institute of Mental Health. The investigation was centered in "direct daily experiences over a period of 2½ years with these families who have lived as family units within the research hospital setting during which time these groups have participated together as family units in daily therapy meetings." Many aspects of method are discussed and impressions described. In a paper entitled "Episodic Behavior Disorders, Schizophrenia or Epilepsy," Monroe (8) presented an elaborate investigation of 20 hospitalized patients with complicated symptoms, which at the descriptive level suggested a diagnosis intermediate between epilepsy and schizophrenia. This special study is an interesting approach to the problem which should be read by those confronted with similar cases.

The literature on manic-depressive reactions reveals only a few contributions during the past year. Among the articles reviewed is that of Gibson and associates(9) on the dynamics of the manic-depressive personality, in which they discuss the family background, the child-parent relationships, and other factors involved in the development of this particular personality. They outline two sets of factors which are important: 1. The state of ego development when major anxiety provoking experiences occur and; 2. The dynamics of interpersonal relationships between the family members. Lichtenberg(10) has studied the clinical, genetic, and dynamic implications, the personality defenses, the early and later management, and also the management of the interrelationships of the patient, the physician, and other persons in the environment during the manic phase of the psychosis. Of interest in differential diagnosis, Jeri (11) reported that of 32 patients suffering with cerebral cysticercosis, observed in the Sanatorio de Enfermedades Nerviosas y Mentáles and in the department of Mental diseases of the Instituto Nationale de Enfermedades Neoplasicas in Lima, 28 had mental disturbances along with the neurological symptoms. The mental disorders consisted of deliria, psychotic reactions of the chronic toxic-infectious type, and severe alterations of the personality requiring elimination of the diagnoses of schizophrenia and manic-depressive psychosis which had been made previously.

In an article on cataplexy, Levin(12) pointed out that this condition which is a temporary "paralysis" or immobilization with loss of muscle tone may be evoked by impulses of aggression associated with guilt. The aggression may be overt and undisguised or it may be symbolic. In its various expressions, it is a conditioned inhibition, "a response to the guilt that attends aggression even when it is unconscious." Kempf in 1920 introduced the term "acute homosexual panic," a reaction which is rather well recognized by clinical psychiatrists but seldom has been discussed in the literature. Glick(13) has made an attempt to define concisely this reaction under the title "Homosexual Panic: Clinical and Theoretical Considerations." It is an acute schizophrenic reaction, and when there is no homosexual content to be found, but only "undue malignant influence, physical violence, or impending death," the author suggests the term "acute aggression panic." Dripps and associates(14) have discussed several aspects of attempted suicide including emergency treatment, the role of the psychiatrist, the attitude of the law, and social problems in the picture. They emphasize that persons who attempt suicide frequently receive inadequate treatment, and advise that the services of an anesthesiologist can be very helpful in special situations, followed by psychiatric help and particularly a careful evaluation of the possibility of a second suicidal attempt. Several examples of "psychic homicide" are offered by Meerloo(15) who relates it to his former concept of "menticide" and brings it into relationship with several aspects of suicide.

The way in which a person considers the real possibility of his own death has been seldom described in the literature of psychiatry. Brodsky(16) has described an interesting patient, whom he treated psychotherapeutically in an article entitled "Liebestod Fantasies in a Patient Faced with a Fatal Illness." The young woman patient attempted to ward off her fear of dying with the fantasy of eternal reunion with her dead brother. In a study of the female castration complex, Bieber and Drellich(17)

discussed the child bearing functions, menstruation, fears of loss of sexual desire and femininity, castration impulses, and various disturbances of feeling, and the feminine and phallic components of female sexuality. They formulate an interesting and detailed concept of female sexuality based on data derived from a study of hysterectomies, from psychoanalytic studies of women, and from observations on children. A report by Blum(18) presents the problem of psychogenic sterility in women. Anxiety as a deterrent to pregnancy, and the function of magical thinking in anxiety are described; "an important factor in failure to conceive is anxiety in response to the woman's perception both of herself as a child and of the maternal figure as having malevolent power." Lukianowicz(19) gives a very inclusive review of the literature on transvestism with a bibliography of 104 references. He surveys a wide variety of items pertaining to this subject including terminology and definitions, classifications, causes, psychoanalytic theories, and other types of explanations. The clinical picture and the relationships between it and several other sexual deviations; the roles of cultural factors and of societal environment are described. Weisman(20) has described a quadrilateral method of psychodynamic formulation by which clinical findings may be integrated with an explanatory hypothesis. The 4 aspects of the formulation depend upon and analysis of: 1. Ego regulating functions; 2. Predominant emotional patterns; 3. Object relationships and; 4. Nuclear elements composed of context temporal factors and antinomies of wishes and fears. The viewpoint is based on the concept of conflict. The detailed description of this type of formulation suggests that it will be found useful in research and in the practice of psychotherapy.

A statistical study of first admissions with psychoneurosis in New York State institutions during the period 1949-1951 was reported by Malzberg(21) who presented data on legal status, age, environment, economic status, education, marital state, race, nativity, and migration factors. The results are important not only for a survey of the psychoneuroses, but also for comparison with previously accumulated data on the psychoses. An analysis of the nature of the neurotic process in terms of the social forces operating as universals in the evolution of the neurosis has been presented by Kubie (22). Various trends, thinking, and fallacies, and cultural variables acting on the components of the neurotic process are outlined. A study utilizing a structuralized interview for the comparison of group of controls, neurotic, and psychotic women, was reported by Winokur and co-workers(23). The developmental symptoms of enuresis and somnambulism were apparently not indicators of a later mental disorder. The psychotics had a higher incidence of miscarriages and a lower incidence of somnambulism, and a significantly higher percentage of psychotics had sexual intercourse infrequently. Such factors as menopausal symptoms, dysmenorrhea, frequency of orgasms, and enjoyment of coitus did not differentiate the groups studied.

The clinical picture, the psychopathology, and the prognosis of the well known type of obsession in women who fear they may kill their child are described by Chapman (24). This obsession is usually combined with the obsessive fear of insanity. The patient fears that even such strong ideas of murdering a child must indicate signs of mental disorder and that if this is the case it could easily lead to infanticide. Cancerophobia was the focus of a study by Fellner (25) who describes two types of patients who go to physicians because of fear of having cancer and who have no objective signs of malignancy. The true cancerophobics can accept the reassurance and gain relief, while those in whom the idea is a real delusion are unable to accept reassurance, but tend to become increasingly anxious with indications of a severe underlying emotional disorder requiring urgent psychiatric treatment. The role played by anxiety in psychophysiologic reactions revealed by an experimental study of 67 post-lobotomy patients before and following operation was presented by Franks and associates(26). Their results support the hypothesis that the operation reduces the psychophysiologic symptoms and complaints, and that there is a definite decrease in the frequency of reported symptoms when the anxiety is alleviated.

A review of the literature on the subject of anorexia nervosa, and the presentation of 15 case histories of patients treated at the Westchester Division of the New York Hospital over a period of 18 years with a discussion of the diagnosis and results of therapy has been published by Wall(27). He emphasizes that "treatment involves psychotherapy, tube feedings, insulin or electroshock therapy, but also involvement in hospital social activities and separation from families to allow the patient to grow up." The death instinct as conceived by Freud in the light of the second law of thermodynamics is discussed by Saul(28) in a thought-provoking article in which, after presenting the evidence for the theory, he concludes that "it is readily conceivable that just as the forces toward increasing life are reflected in the mind as self-preservation, sex and mating, and the like, so the direction of the chemical processes toward reversal is reflected in a tendency of the whole organism which can properly be termed as a death instinct." In an elaborate study, Kardiner and co-workers(29) have discussed the basic Freudian concepts, subjecting them to a critical examination. The results of the study have been divided into 4 parts, 3 of which have now appeared in print, namely, "Basic Concepts," "The Libido Theory," and "Narcissism, Bisexuality," and the "Dual Instinct Theory." The fourth paper in the series will deal with a new structural hypothesis, a revised theory of anxiety and post-Freudian ego psychology. Alternative explanations are suggested in places where the Freudian concepts are thought to be defective. The alternative explanations are derived from an "adaptational frame of reference rather than from the Freudian instinctual one." Some of the characteristics of dreams have been explored in relation to the conditions prevailing during sleep in terms of the adaptative function of the dream by Ulman (30). He directs attention to the possible role of neurophysiological changes during sleep, the role of the reticular activating system, and other possible important components in the dream work and function. Clinical material is presented to support the theoretical concepts which emphasize that the dream is the unique means of coping with man's biological environment including the sociobiological aspects.

Serban(31) has presented the psychotherapeutic approach of the Pavlovian school to problems of neurosis. In the concepts of this school the social factor in personality formation plays a prominent role, and mental activity results from the function of the brain as determined by the person's existence. In Russian psychiatry since a neurosis is determined by the existence and by physiological factors, it has to be studied and treated by the materialistic method conceived by Pavlov. Therefore, the psychotherapeutic approach is physiological, materialistic, philosophical, and dialectical. Psychotherapy based on Freud and on Pavlov are contrasted. An investigation of the role of sociodynamics in psychotherapy was published by Gordon(32) who studied 601 adults in an experimental group and 98 children as controls. The adults and the children as well, were divided into two groups, one treated by dynamic psychotherapy alone and the other by the addition of social therapy. The adults reacted definitely better with social and dynamic therapy combined than with insight therapy alone. The two groups of children showed no marked differences. The social therapy in this extensive study consisted of a betterment of the social environment, emotional support, good friends, social organizations such as clubs and educational opportunities. An article by Stevenson(33) discusses some of the theoretical and practical aspects of the direct instigation of behavioral changes in psychotherapy. He treated 21 psychoneurotic patients by attempting to instigate new behavioral responses on the part of the patient toward persons in his environment with interviews focused principally on the patient's current relationships. Fourteen of the patients were much improved and follow-up interviews ranging from 9 months to several years revealed that improvements had been sustained. During the treatment, the number of interviews with the improved patients averaged 61. The same author(34), in another article advises that much could be learned about psychotherapy by means of studies other than by this method; but emphasizes that a therapy is a therapy, only by its results, and not by theories regardless

of how elaborately they may be formulated.

A discussion of the difficulties and factors that tend to cause patients to "drop out" of therapy is offered by Gedo(35). The "emotional climate" of premature therapeutic separation is illustrated by case reports, and Cooper(36) emphasizes that prejudicial attitudes are attended by strong emotions. He reports extensive studies to show that physiological tests support this thesis. Results with tranquilizers are now forcing the psychotherapists to take into account their results in therapy, and particularly the nature of the results. Combinations of psychotherapy and drug therapies are now a much advocated approach. Hoch(37) in a useful discussion of the situation, approaches the question as to how much psychotherapy is needed for patients under drug treatment, and particularly the extent of its use in schizophrenic patients. He expresses the belief that the combination is of special importance in such patients especially, if it can be applied without detriment to the therapeutic situation. He places emphasis on the fact that each patient is a special problem requiring sound clinical judgment, and that generalizations or indications for one therapy or another are not applicable. He advises that the experts in psychotherapy pay more attention to integrated treatment. Cattell(38) in an informative survey of the drugs used has published a tabulated list of selected psychopharmacological agents giving clinical names, manufacturer, range of daily dosages, and side reactions. It value for purposes of reference and guidance is obvious. Some controversial issues are also mentioned. The use of Ritalin in psychotherapy of depressions in aged persons was reported by Jacobson(39), who studied the effect it might have on both reactive and involutional types of depressive states. Manic-depressives were excluded from the study. He found that the drug facilitated communication and cooperation chiefly by its mood elevating effects, and therefore is a useful adjunct to psychotherapy. There was also an increase in alertness and an alleviation of morning depression and fatigue. He also found Ritalin useful in counteracting lethargy or over-sedation from ataractic drugs.

Concerning the psychotherapy of alcoholism, Lemere(40) explains the attitude of the physician and of the family toward alcoholic problems, and makes a plea to physicians in general to try to understand and to recognize that alcoholism is a disease, and that it is so considered by The American Medical Association, as well as by the public. He outlines in some detail the chief characteristics of the condition, describes what the alcoholic must do to help himself, and explains the special functions of the therapist in such a setting. The role of the family physician in the prevention of emotional disorders is presented by Caplan (41). He advises the family doctor to develop a working relationship with a psychiatrist who can aid him in improving his ability to recognize the emotional needs, the mental health requirements, and the early symptoms of mental trouble in the families where he has to practice among the problems of pregnancy, divorce, bereavement, and other crises with which he is in immediate contact. He is usually in a position to exert a healing effect and to aid in the adjustment of those involved in life problems. Schiff and Pilot(42) offer an approach to psychiatric consultation which they have found adequate in the general hospital setting. It is based on a viewpoint primarily consultation-oriented rather than patient-oriented. Case histories are presented to "illustrate the nature of the concerns not made explicit, how they may operate in the management of the patient, and how they have been dealt with by the consultant."

Among the outstanding books of the year is the two-volume *American Handbook of Psychiatry*(43) prepared by 111 contributors and comprising some 2000 pages. It contains several chapters on clinical psychiatry and psychotherapy.

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PHYSIOLOGICAL TREATMENT

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Several pharmacological and clinical review articles which have appeared during the past year will help the bewildered psychiatrist to organize his information on the vast and growing literature of psychopharmacology. Hippius and Kanig(1) distinguish three main classes of phenothiazines: the promazine, the mepazine, and the perazine groups, characterized respectively by propyl, piperidyl-methyl or piperdyl-ethyl, and piperazinyl-propyl side chains. It is the last group, which includes Compazine, Trilafon and Stelazine, that the authors regard as our most potent phenothiazine therapeutic agents. Himwich(2) concurs in this judgment. Hoffman(3) and Hollister(4) have also each written general pharmacological accounts of some of the new drugs, and authoritative general clinical discussions will be found in the recent essays by Delay(5) and by Sargant(6, 7).

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TOFRĀNIL AND OTHER ANTI-DEPRESSANTS

In Germany, Austria, Italy, France, Switzerland, Canada, Cuba, Spain, and in the

U. S. A.(8-30) almost all reports agree that iminodibenzyl (Tofrānil) will relieve at least half the cases of endogenous depression in a matter of days or weeks, and will benefit other types of depression as well. Dosages of 100 to 150 mg. a day are recommended; higher doses are seldom required. Side effects, though common, are usually mild and may involve dryness of the mouth, disturbances of accommodation, headache, dizziness, tremors or twitchings, sweating, flushes, constipation, thirst, insomnia, pruritis, paresthesias, dysarthria and glossitis. More rarely epileptic seizures, confusion, hallucinations or hypomanic states may supervene. Since even the milder side-effects may be distressing to depressed patients, it is advisable to keep dosage to a minimum, especially in older patients. Delay, Deniker and Lemperière(15) think a combination with phenothiazines, especially levopromazine, improves the results.

Its range of usefulness seems similar to that of Marsalid, though individual cases may respond better to one drug than the other. Freyhan(31), Hoff(32) and Kalinowsky(33) all still regard electroshock treatment as the treatment of choice where suicidal risk or other considerations make quick action essential, or where toxic side effects might be disturbing. In milder cases, treatment with Tofrānil for a week or two may obviate or reduce the need for EST, and it is also of value in preventing relapse after EST(34). Though neither method of treatment will prevent or delay the return of a cyclic depression, remissions after EST appear to be better maintained. Tofrānil can also be cautiously used in handling depressions of the aged(35). As an interesting side light it is also said to be helpful in relieving mucous colitis, rheumatoid arthritis and hypertension(36). The recent supplementary volume(37) of the *Canadian Psychiatric Association Journal* provides an excellent review of the entire subject.

The proceedings of a full and informative conference on the amine oxidase inhibitors have just been published(38). Though the anti-depressant action of Marsalid is remarkable(39, 40), its toxicity gives serious reason for concern. Borenstein and Dabbah (41) report frequent though usually transient disturbances in liver function, as reflected in cholesterol levels. Nine cases of Marsalid hepatitis are reported from a single hospital in New York(42). Another recent report(43) lists 3 cases. Hoheisel (44) in Germany also describes several. Cases with toxic symptoms of delirium and melena, sometimes with fatal outcome, are reported elsewhere in Europe(45, 46). By the middle of 1958 the New Drug Branch of our Department of Health, Education, and Welfare had heard of 180 cases of Marsalid hepatitis, 20% resulting in death. Both Kielholz(47) and Kalinowsky(33) have abandoned Marsalid because of the serious liver and circulatory complications reported. Meanwhile the producers of Marsalid are making available a new amine oxidase inhibitor of related structure known as Marplan. This is a more potent and more toxic drug, but can be used in smaller doses and is said to have a better therapeutic index(48, 49). B-phenylethylhydrazine (Nardil) is another antidepressant amine oxidase inhibitor that has recently been introduced(50).

Intermittent sleep therapy, induced by various hypnotic combinations, continues to demonstrate its value not only in depressions, but in certain cases of schizophrenia, neurosis(51, 52), and psychosomatic conditions(53) as well.

PHENOTHIAZINES AND OTHER SEDATIVES

Newer reports continue to confirm the value of chlorpromazine in the treatment of schizophrenia(54-56). Thorazine, it is interesting to note, also has a certain antibacterial effect and reinforces the action of several antibiotics(57). In spite of the frequency and prominence of the extrapyramidal side effects perphenazine (Trilafon) also maintains its usefulness(58, 59). A combination with mepazine (Pacatal) reduces the Parkinsonism(60), but may increase the danger of agranulocytosis. Trifluoperazine (Stelazine) is a potent agent in the treatment of hallucinating, deluded, withdrawn, agitated patients, especially paranoid schizophrenics, but also induces marked extrapyramidal effects, especially when doses exceed 20 mg. a day (61-64). Combination with antiparkinsonian drugs such as Cogentin has been found helpful(65). Gearren(66) uses it

in office practice to relieve anxiety. Another active trifluoride phenothiazine related to Trilafon is fluphenazine (Prolixine), said to be 25 times more potent than Thorazine, quickly effective in parenteral use, but with the same serious extrapyramidal accompaniments, and a special tendency to induce leukopenia(67). Trifluprομazine (Vesprin) is another potent drug, which may induce convulsions, weakness and ataxia. Neither jaundice nor dermatitis has thus far been reported, but aside from its potency and rapidity of action, it seems to have no advantage over Thorazine(68-71). Proclorperazine (Compazine) has a similar range of indications, similar potency and similarly distressing extrapyramidal side-effects, sometimes reaching alarming proportions(72-74). Reduction of dosage and use of antiparkinsonian drugs are advisable when serious symptoms threaten. One case is described where spasms and severe glottis edema required tracheotomy(75).

Promazine (Sparine) seems to have no real advantage over chlorpromazine, and carries the danger of convulsions, vascular collapse and agranulocytosis, though on moderate dosage (200-600 mg. per day) it is said to be well tolerated(76-79). Levopromazine (known as 6549 RP in France) has been favorably described as a drug of low toxicity and mild action, of particular value in depressions(80-83). Acetylpromazine (Plegicil in France) is more potent than Thorazine but is said to induce no Parkinsonism, though it has been relatively little used, and reports are scarce(84).

Thiopropazate hydrochloride (Dartal) is about 5 times more potent than Thorazine, with a similar range of indications and complications(85, 86). Another new phenothiazine developed by the French firm Specia as 7843 RP is closely related to proclorperazine, is very potent, calms excitement with great rapidity and has been found helpful even in chronic resistant schizophrenic cases with defect(87, 88). Mention should also be made of the French 4362 RP methopromazine(89), similar to chlorpromazine, and Ciba's 17040, which appears with the usual report of efficacy and low toxicity(90).

N- (2′-[1″-methyl-2″-piperidyl]-ethyl)-3-thiomethyl-phenothiazine, abbreviated as thioridazine, was introduced on the continent by Sandoz as TP 21 and is marketed here as Mellaril(91-96). Though milder in its action than Thorazine, it has a wide range of usefulness and sometimes helps where Thorazine has failed. It is said to be especially effective in moderately excited cases and in certain depressive syndromes with negativism; it relieves insomnia as well as pain and many psychosomatic complaints. On the whole it is well tolerated, though skin reactions have been reported and 10% of treated cases show definite leukopenic tendencies. Extrapyramidal effects are rare, and hepatic dysfunction has not been reported. It has a tendency to induce galactorrhea. Kinross-Wright(97) regards it as a definitely superior drug.

Hydroxyzine (Atarax) is described as especially beneficial in relieving anxiety and bizarre, autistic or delusional thinking(98). Side effects are said to be minimal. Azacyclonol (Frenquel) displays a curiously specific effect on hallucinations, and a trial intravenous test is advised in cases where persisting hallucinations are prominent symptoms(99, 100). Methylpentynol (Oblivon) is recommended for younger children as a well tolerated non-toxic sedative, especially suited to relieve anxious, mildly disturbed, or acutely upset children who are otherwise normal—in hospital ward situations, for example(101, 102).

OTHER NEW DRUGS

Haloperidol, R 1625, is a potent drug, a few mg. of which, administered by injection, quickly controls psychomotor agitation(103). It is also hypotensive. Meduna and Abood(104) have been experimenting with a new hallucinogenic drug, N-ethyl-3-piperidyl cyclopentylphenyl glycolate hydrochloride (Ditran) with an atropin-like anticholinergic action which is said to be very effective in reactive depressions. Dimethazan is a xanthine caffeine derivative which had a striking restorative effect on a group of debilitated chronically ill patients (105). Simon(106) claims success with a new whole pituitary extract in the treatment of involutional depressions, and Zhuravleva(107) treats schizophrenic and hypochondriacal cases with a series of parenteral injections of a special bovine blood preparation called parenterine.

SYNAPTIC CONDUCTION AND PSYCHOSES

Sigg(108) suggests that Tofrānil derives its anti-depressant action by sensitizing central adrenergic mechanisms at the synaptic level, while Marsalid protects the transmittor substance from breakdown, and he proposes the reasonable general theory that all anti-depressant agents operate through an activation of central adrenergic mechanisms. Hoffer(109, 111) also predicts that the catecholamines will prove to be the crucial factors in depression. During depression the excretion of catecholamines is reduced(110). Perhaps paranoia, a species of over-responsiveness at the other end of the scale, reflects excessive adrenergic activity. Amine oxidase inhibitors like atebrine, cocaine, amphetamine, ephedrine, and several local anesthetics (Tofrānil is also a topical anesthetic) can all induce psychotic symptoms. Tofrānil, like Marsalid, increases brain serotonin and catecholamines(112). From this point of view the atropin-like character of Tofrānil is interesting. But no simple formula can explain all the complexities: small doses of atropin may induce a psychosis(113, 114), but large doses can also relieve one, and atropin coma has been described as virtually specific in terminating manic attacks(115). Flügel(116) suggests that antiparkinsonian drugs tend to be anti-depressive, while drugs like chlorpromazine, which induce Parkinsonism, are contraindicated in depression. Büssow(117) finds that supplementation of reserpine or chlorpromazine with atropin makes it possible to successfully treat depressions. Orphenedrine chlorhydrate, an atropin-like drug, has a striking stimulating euphoriant and anti-depressive action which promises to be useful both as a phenothiazine antidote and in the direct treatment of akinetic depressions (118). Stern(119) also believes that a surplus or deficiency of monoamino oxidase may be the cause of some psychoses.

TOXICITY AND SUICIDES

Sales of psychopharmaca now exceed $200,000,000 a year in this country(120). In little Denmark (population 4,500,000), 61,000,000 tablets of meprobamate alone were sold in 1958, addiction is widespread, withdrawal symptoms severe, and suicidal attempts by means of the drug quite common, 87 instances being known to one author(121). Millions of Americans are now using these newer drugs. At the Madison, Wisconsin Poison Information Center, 1% of all inquiries now concern the tranquilizing drugs(122). In 1955 the Public Health Committee of the New York Academy of Medicine knew of 12 tranquilizer poisonings; there were 8 times that number in 1956, including at least 2 fatalities(123). During the past year fatalities have been reported from Trilafon(124), Pacatal(125), and especially from Sparine(126-128), either from agranulocytosis or from vascular collapse. In one series of 3,000 cases treated with Thorazine, Promazine or Compazine, 18 cases of agranulocytosis occurred, many of them in younger patients(129). Attention should also be directed to the very greatly increased liability to thrombosis, thrombophlebitis and pulmonary embolism in patients under chlorpromazine or reserpine (130). In addition to serious hepatic dysfunction, severe spasms or convulsions can occur during treatment with a variety of phenothiazines, including Compazine, Stelazine, Vesprin, Trilafon and Thorazine (131-133). All of the drugs are not only liable to be implicated in suicidal attempts, but some of them may even induce dangerous depressions. In view of this it is essential that publicity be given to the dangers of misuse and abuse of these newer medicines, and that toxicity be adequately advertised. Surveillance and caution are both required, particularly with newer drugs where clinical trial has been brief and inadequate.

MISCELLANEOUS

In a comparative study of a very large case material it was found that acute schizophrenic cases did best when treated at first with insulin coma and later maintained on Thorazine(134). Only the cases of several years duration did better on Thorazine. If this chronic case material is treated for 6 months with at least 300 mg. per day, few cases—and these mostly paranoid or hebephrenic—will be found resistant to treatment(135, 136). Vartanian(137) recommends lithium carbonate in cases of prolonged agitation where Thorazine or

other measures are unavailing, or where it is for any reason contraindicated.

Stevens and Dunn(138) again confirm the fact that thyroid activity is often depressed in psychoses, especially in agitated cases. Danziger's claim of remarkable success with massive thyroid treatment of acute schizophrenic patients should not be disregarded(139).

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PSYCHOSURGERY

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Apparently no group of patients are as grateful to their physicians as those who have had relief of their symptoms through frontal lobe surgery. Ordinary process of follow-up seems largely unnecessary with this group because about 90% either write to us regularly, telephone or report back to the hospital from as far away as Texas and Arkansas. Questionnaires always get a total response and several patients have spontaneously volunteered to talk to prospective surgical candidates . . . We consider this continued friendliness and desire to maintain contact long after leaving the hospital to be a most gratifying result of the procedure. The well-known habit of the former patient snubbing his psychiatrist in public does not seem to prevail here. Perhaps this pleasant reversal of form has increased our enthusiasm for this therapeutic procedure.

The above quotation from the paper by Slocum, Bennett and Pool(23) epitomizes the social results of lobotomy in patients with chronic anxiety states.

Lobotomy is specific for uncontrollable anxiety. In ordinary patients anxiety can be more or less suppressed by drugs, but as Alexander(1) states, lobotomy is "sometimes the only one that can resolve the

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illness in truly desperate treatment-resistant cases." Fear and worry are listed by Greenblatt(9) as coming under control in a high percentage of cases. Slocum *et al.*(23) state further that: "In all of these 18 patients the sole aim of surgery was to give the patient relief from severely disabling anxiety and break up the concomitant tension." They describe the agonizing suffering before operation and the remarkable improvement after operation: sleep without sedation, a full diet, healing of ulcerative colitis and tuberculosis, control of hypertension, even relief of asthma and hay fever. Of the 13 patients who were not psychotic, 12 returned to a well-adjusted independent existence at home without further hospitalization or continuation of therapy. Far from being damaged by surgery the patients resumed their life patterns with ability that had usually been lost months and sometimes years prior to operation. The patients explained this by the fact that their minds, free of self-recrimination, anxiety and fear, could return to normal function. Sagebiel (21) agrees: "Anxiety, in all its various manifestations, should be the main criterion for determining the selection of patients."

The reverse side of the medal is revealed in several well-controlled studies on chronic patients. Robin, in three papers(18, 19, 20) and Ball *et al.*(2), working with Veterans Administration patients, conclude that lobotomy makes little difference in the eventual outcome.

In Ball's study 185 patients were operated upon and compared with a control group of 185 patients comparable in age, diagnosis and length of illness. Evaluation by rating scales was made over a period of 5 years. "Discharge rates for the standard and bimedial groups increased each year after operation and were significantly higher than that of the controls by the fourth year. The community adjustment of these discharged patients, although below average to marginal, was rated as better for those who had been lobotomized than for the controls." The tranquilizing drugs, introduced during the third year of this study, had more beneficial results upon the control patients than upon the operated ones.

Robin(18) compared 198 leucotomized patients with 198 closely matched controls. Leucotomy did not improve chances of discharge nor accelerate it; it did not reduce the chances of readmission nor delay it, nor reduce the number of readmissions, nor the total period of readmission; it did not improve hospital behavior as judged by ward level, nor increase the death rate. A second leucotomy did not improve prospects of discharge as compared with the controls.

It would almost be safe to conclude that lobotomy is of little value in the psychoses were it not for a study by Barahal(3) on 1,095 patients (90% schizophrenics), nearly half of them hospitalized for more than 5 years. Five to 10 years later 16% were at home as contrasted with 2% of the controls, that is, patients who were recommended for lobotomy but for whom permission could not be obtained. In the 5-year-plus group of operated patients only 6% were discharged, as contrasted with 44% operated upon during the first year of hospitalization, 38% the second year and 23% in the years 2 to 5. Chronicity is thus shown to be the outstanding factor in the failure of psychosurgery, at least in schizophrenia. Boyd *et al.*(4) describe the therapeutic value of lobotomy on the disturbed wards of a mental hospital, but these figures are no better than those obtained by drugs. Smith and Kinder(24) restudied the Rockland topectomy patients 8 years later and found progressive downgrading when compared with their controls. Superior topectomy produced greater losses then orbital resections. Discriminatory capacity was most markedly reduced.

Hirose(10) followed 280 schizophrenics from 2 to 11 years after a variety of operative procedures. Two-thirds were improved, half of these discharged. He theorizes that changing the patterns of psychologic reactions to the underlying biologic conditions makes rehabilitation possible. Polonio(17) advances theories to explain the alteration in psychotic ideation and behavior that underlies the improvement. Proper choice of patients results in 75% recovery. Sainz(22), with tongue in cheek: "No, the leucotome, long, rounded, sharp, and of virile steel, could well represent an apotheosic phallus, deeply thrust into the very entrails of the brain, satisfying all

basic homosexual urges of the patient in a veritable explosion of libido."

Kalinowsky(12) believes that patients with chronic depressions that do not respond to ECT are excellent candidates for psychosurgery. "In this group pharmacotherapy will be tried but is not the answer because too many different symptoms occur requiring different medication and also because these patients are often quite sensitive to side effects of the drugs, and side effects are particularly disturbing to them."

Robin's(19) negligible results in patients with affective disorders are so out of line with the findings of other investigators as to cast doubt upon the efficacy of the surgery. In a symposium(5) in London, McKissock said that the experimental period was past.

> There has been a striking change in the type of clinical case referred for operation . . . This has been reflected in the marked diminution in the number of deteriorated schizophrenics offered for surgery [and] a corresponding increase in the number of patients suffering from symptoms of anxiety, tension, agitation and depression who have failed to respond to all the other accepted forms of treatment.

Referring to 170 leucotomies he performed at one mental hospital, mostly with rostral incisions, he found 60% working, 30% home and only 10% in hospital.

> To sum up, rostral leucotomy has proved itself to be a form of treatment carrying a very low risk of life—less than 1%. It produces remarkably little undesirable side-effect and, when used in properly selected cases, chosen by experienced psychiatrists, offers a high rate of recovery.

Knight, whose incisions were made in the lower medial quadrants in 200 patients, achieved 117 recoveries and only 19 failures. "These patients are warm and normal emotionally, and many letters from relatives emphasize the entirely normal life and reaction of the patients after operation." Partridge followed 89 of his original patients 10 to 12 years later. Half of them were continuously out of the hospital. Recurrences of affective disorders were milder. The 7 obsessionals, previously totally incapacitated, had been able to lead an approximately normal life without relapse. Elithorn found significant differences between endogenous and reactive depressives, the former responding much better. "Only one patient suffering from an endogenous illness regretted having a leucotomy. Of the reactive depressives 8 regretted the operation and 9 were neither glad nor sorry." Of the 105 cases only 14 were regarded by the author as failures.

Psychophysiologic reactions in 67 postlobotomy patients are analyzed by Franks *et al.*(7), revealing a notable loss of symptoms, consequent upon the reduction in anxiety.

Further studies upon interruption of frontal pathways by non-cutting methods are reported by Larsson *et al.*(13) with the proton beam, Lindstrom(14) with ultrasound and Jaeger(11) with hot water injection. The pathologic findings in 25 patients dying at varying periods are ultrasonic irradiation for relief of suffering in terminal malignancy are reported by Nelson, Lindstrom and Haymaker(16). Leaving the dura unopened spares the cortex. The lesions in the white matter are sharply circumscribed, purely necrotic, with little reaction, and their extent is dependent upon the time and energy of the application. The location of the major lesions is variable. Fiamberti(6) brings up to date the Italian bibliography on transorbital lobotomy, 57 references. Freeman(8) surveys the field of psychosurgery in *The American Handbook of Psychiatry*. A biographic sketch of Burckhardt (1836-1907), the Swiss pioneer in topectomy, is given by Müller(15).

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CHILD PSYCHIATRY; MENTAL DEFICIENCY

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In keeping with the practice established last year in this section, comment will be limited to a few contemporary developments in order to permit at least brief critical appraisal.

CHILD PSYCHIATRY

The most noteworthy administrative event of the year has been the establishment of subspecialty certification in child psychiatry(1). The requirement of 4 years of psychiatric training (2 of which are to be spent in working with children) and the encouragement of pediatric training (acceptable in lieu of additional psychiatric experience) can be expected to have a decided impact upon the entire field, with a reemphasis on the medical foundation of pediatric psychiatry. The composition of the Committee on Child Psychiatry and its early actions give promise that an elevation of standards may be achieved without the much-to-be-feared corollary of freezing training programs into repetitive sterotypes. Child psychiatry, legitimatized less than 3 decades ago, has now come of age. The distance travelled has been epitomized by the author of the first American textbook (1935) to bear the title : *Child Psychiatry.* Leo Kanner, now Professor Emeritus at the Johns Hopkins University, has identified the main currents and the tributaries in the history of child psychiatry at the Maudsley (2) and Horney(3) Lectureships. In these scholarly articles he has developed the meaning of the present in the perspective of the past, an undertaking peculiarly fitted to this year of the official designation of the *rites de passage* to full specialist status.

In a theoretical paper of considerable importance, Bowlby(4) has presented a critique of hitherto available conceptual models on the development of the child's tie to his mother. Freud, hampered by the lack of systematic observations on infant behavior and, on his own admission, by the intensity of the father transference of his female patients, underestimated, at least until late in his career, the strength and importance of the infant's early relationship to his mother. Viewing this first object choice as derivative from the reduction of oral tension, Freud ascribed to it no more than a transitional role in the ontogeny of essentially auterotic impulses, which only later converged upon the parent of opposite sex. Child analysts, in disregard of their own insightful clinical observations, continued to subscribe to the classical Freudian

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view of the anaclitic basis of the earliest object choice.

Bowlby, with somewhat uncomfortable apologies for his heresy, synthesizes notions borrowed from Piaget and from the ethnologists with his own studies on the consequences of maternal deprivation to present a theory of "component instinctual responses." He describes 5 (but acknowledges that there may be more) inborn behavior patterns: sucking, clinging, following, crying, and smiling; each more or less independent and maturing at its own rate, but becoming integrated and focused upon the mothering person in the normal course of development. "Instinct" in his sense is not drive or motivating force (an unfortunate concept resulting from the mistranslation of "Trieb") but rather built-in species—determined behavior, released or suppressed by appropriate "sign-stimuli" from the environment and by interoceptive signals from within the infant organism. This family of behavior items is conceived as having evolved because of biologic survival value for the newborn. A necessary distinction is drawn between early responses, which are simple functions of fragmentary perceptions in an infant without a differentiated consciousness of self, and the gradual elaboration of a "monotropic" attachment to a mother perceived as a person existing in time and space with a history and individuality of her own (some time toward the end of the first year). Drawing upon anthropoid data, Bowlby argues for the importance of complementary maternal instincts, but here his development is less convincing. One need not deny the likelihood that phylogenetic mechanisms passed on from primate ancestors are present in the human mother in order to contend that they are of minimal importance as contrasted with role of culturally elaborated expectancies in determining her maternal behavior.

Bowlby's insistence upon the independence of the separate components of the infant's instinctual repertoire and his revision downward of the importance of sucking as the basis for attachment to the mother have received striking confirmation in Harlow's studies with infant macaques (5-7). In an ingenious experimental design, Harlow reared isolated infant macaques with "mother surrogates" consisting of either wire or terry cloth dummies, with or without an artificial "breast" to permit nursing. To summarize his findings, the infant monkeys much preferred the terry cloth figure, *whether or not* it was the source of milk, apparently because of cutaneous and kinesthetic contact sensations. The attachment to the terry cloth "mother surrogate" was remarkably persistent; when it was available, the infant retreated to it in the face of novel or threatening situations and was then enabled to resume exploratory behavior, as contrasted with the cowering and timorous reaction to the same stimuli in its absence. Experiments in progress appear to demonstrate preferential attachment for dummies that permit "clinging contact" rather than mere contact and still more to those that rock back and forth. Details aside, these studies indicate that, at least in the macaque, the infant's attachment to his mother is only minimally related to her nursing role and far more to her function as an object to which the infant clings. This serves to emphasize the importance of the *activity* of the infant in the process of forming a relationship as contrasted with earlier stress upon the neonate solely as a passive recipient. A word of caution is necessary: The capacity for clinging is highly developed in the infant primate for whom it is essential to survival in an arboreal existence; it may constitute a more significant factor in mother-attachment in such animals than it does in man.

Bowlby's views do not resolve all of the issues in the genesis of social behavior. The supporting data rely heavily upon analogy with subhuman behavior; the role of learning is so much more critical in our species than in others that caution is indicated in the translation into human terms from animal experiments, however ingenious. Nonetheless, the great virtue of Bowlby's conceptual model lies in the possibility it presents for experimental analysis in contrast to mere romanticism or misanthropy in interpreting pre-verbal stages of infant development.

The necessity for a careful reappraisal of current clinic practices is evident from two

studies published in the past year. Tuckman and Lavell(8), in a survey of 1,548 outpatient admissions to 11 child guidance clinics in Philadelphia, found that, overall, 59% were patient-terminated, with a strong indication that those families most in need of help were the least likely to complete the treatment process. Equally significant was the finding that attrition rates varied from a low of 26% to a high of 71% at individual clinics; one wonders to what extent differences in type of referral, screening procedures, waiting periods and therapeutic philosophies account for this very sizable variation. Nonetheless, the figures imply an intolerable waste of professional time in the face of the nationwide scarcity of services(9). At the same time, Levitt *et al.* (10) were unable to demonstrate any consistent difference on a number of measures of adjustment between treated and untreated patients some 5 to 6 years after the time of application for psychiatric services. True, this study, despite its very considerable merits, suffers from the limitations of retrospective studies: defectors from services as "controls"; unequal moieties of control and experimental groups lost to follow-up; the unknown therapeutic impact of the diagnostic process on the "controls"(11). Everyday clinical practice is based on the conviction that therapeutic intervention does make a difference; yet this study, like its predecessors(12), challenges the essence of that conviction. How can we account for this disenchanting set of findings? Are the wrong variables being measured so that benefit eludes our net? Is the rate of spontaneous recovery so high as to preclude the statistical demonstration of any but superlatively effective treatment results? Or may the failure lie in the amalgamation of patients from heterogeneous diagnostic categories, in certain of which treatment may be related to outcome and in others of which it is without bearing, either because the disturbance is self-reparative or because it is beyond response to available therapeutic modalities? That this last factor may be relevant is indicated by studies of long term prognosis(13) and of short term response(14) in relation to diagnostic grouping. The time is long past for a critical reexamination of traditional practice in order to learn to specify who is to be treated, by what method and for how long.

MENTAL DEFICIENCY

Mental deficiency, once the step-child of medicine, a waste basket of heterogeneous disorders possessing in common only the one feature of low intelligence, has become an exciting area of biochemical and genetic research. The central idea behind the resurgence of interest can be traced to Garrod's concept of inborn errors of metabolism (15), which have grown from the 4 he recognized to well over 50 under current study (16). It is now evident that the absence of, or deviant function of, a gene which controls the synthesis of an enzyme in a metabolic sequence may lead to a deficiency of the end-product of the sequence and an accumulation of an excess of intermediary metabolites. These, in turn, may have mass action effects on reversible reactions, inhibit other enzymes, or may themselves be directly toxic or become toxic as they flow over auxiliary metabolic routes. The pathologic consequences of biochemical derangement may be evident (a) at birth, (b) only in the presence of specific dietary intake, or (c) at a later stage in the developmental sequence. Early identification of the biochemical defect may lead to the hope of control by elimination of particular foodstuffs, by dietary supplementation, and, in theory, by the artificial introduction of missing enzymes.

As examples of recently uncovered metabolic defects associated with mental deficiency, the following may be cited: Hartnup disease, a disorder of tryptophan metabolism clinically similar to pellagra but stemming from a failure in synthesis of the apoenzyme rather than from a lack of dietary niacinamide(17, 18); maple syrup disease, so named because of the odor of the urine which contains pathologic amounts of alpha-keto acids(19-21); and sucrosuria, a disorder associated with hiatus hernia and mental deficiency, anomalies that may be independent of one another (22, 23). Therapeutic consequences of these discoveries are yet to come. The one disorder in which the train of pathologic consequences of a genetically determined

enzymatic deficiency can be totally prevented by dietary management from infancy is, of course, galactosemia, discussed in an earlier review(24). The issue is not quite as clear, though highly promising, in phenylketonuria. Good results with a phenylalanine low diet administered from infancy have been obtained by most investigators(25, 26) but not by all(27).

During this same period, methods for the accurate determination of human chromosome number and sex chromatin patterns (28) have led to the undercovering of chromosomal abnormalities in clinical syndromes associated with mental deficiency. The presence of an extra chromosome has been demonstrated in mongolism(29). Klinefelter's syndrome (seminiferous tubule dysgenesis), frequently associated with mental deficiency, displays a discordance between chromosomal and phenotypical sex(30-31). A number of surveys of the sex chromatin patterns of males in institutions for the feebleminded have been undertaken, with a low (about 1%) but consistent finding of "positive" cases(32-35). These patients, on the basis of direct chromosome counts, appear to have XXY chromosomal constitution(36-37) and are therefore to be regarded not as genetic females but rather as chromosomal intersexes.

The nature of the relationship between the chromosome abnormality, on the one hand, and the mental defect and other evidences of psychopathology, on the other, is as yet unclear. The findings indicate that the factors which influence psychic function are considerably wider than we have recognized. At the least, these developments foretell an era of exciting research which should help to dispel any remaining inclination to regard mental deficiency as an entity and to view the syndromes as "routine."

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OCCUPATIONAL PSYCHIATRY [1]

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INTRODUCTION

Interest in occupational psychiatry continues to grow. An editorial in the New York Times(1) points out that a recent mental health forum urged that companies set up mental health centers and employ psychiatrists in the same way that they now have hospital facilities and employ physicians. Another indication of the increasing awareness of the importance of mental health problems in industry was the recent annual conference of industrial executives and industrial physicians at Lake Logan, North Carolina, which this year focussed on industrial mental health. A survey(2) by the APA Committee on Occupational Psychiatry reveals that about 200 psychiatrists are currently functioning in some consulting capacity to industry. The National Health Council's forum in Chicago on occupational health devoted two afternoon sessions to mental health in industry. One of the 5 main projects for World Mental Health year 1960 will be, "Mental Health and Developing Industrialization." Dr. Roger Tredgold, of University College Hospital, London, will act as the principal coordinator for this topic. There will be an industrial psychologist from the United States and an industrial psychiatrist from Europe as the other coordinators. The project will need some 15 local country representatives to cover countries in the general areas of Asia, Africa and Latin America.

PSYCHIATRIC PROGRAMING IN INDUSTRY

There seems to be a growing interest in industry for some sort of psychiatric programing. A recent report by McLean(3) notes that at least 8 corporations employ fulltime psychiatrists and that about 200 companies are using psychiatrists on a part-time basis. He believes that the industrial psychiatrist's main function is to stimulate mental health rather than treat mental illness. The industrial psychiatrist engages in clinical activities, mental health education for management, and in research. A study of long-term incapacity by Henderson *et al.*(4) emphasizes that the main causes of incapacity which accounted for 70% of the total were mental illness.

ALCOHOLISM

Alcoholism continues to be a concern of industry. Thorpe and Perret(5) reporting on a study of 278 problem drinkers known to an industrial medical department revealed that medical, psychiatric measures, Alcoholics Anonymous, or a combination of any of these resulted in an improvement in 60-65% of the cases. Another study(6) of absenteeism, accidents and sickness payments in alcoholics reveals that the problem drinkers were absent 2.5 as many days, cost 3 times as much in sickness payments, and had 3.6 times as many accidents as matched controls. Turfboer(7) reports on an in-plant program for the rehabilitation of alcoholics in an oil refinery on a Caribbean Island. Parr(8) makes a plea for recognition of "incipient addicts" among drinkers or at least to warn them of the risk they are running. D'Alonzo(9) of the Dupont Company has written a book entitled *The Drinking Problem and Its Control*, which describes an experimental plan for the rehabilitation of alcoholics at that company. In this plan a deliberate effort was made to seek out the alcoholics. More than one-half of the cases were said to have been rehabilitated and another 20% were improved.

[1] Appreciation is due the other members of the Committee on Occupational Psychiatry, APA, and American and foreign correspondents.

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SPECIFIC SYNDROMES

A review of the literature reveals that some specific problems have been receiving attention among physicians and psychiatrists working in industry. Mortinsen *et al.* (10), for example, report on the mortality due to coronary disease according to broad occupational groups. Beaumont(11), Edwards(12) and Hill(13) discuss problems related to epileptics in industry. The last author points out that the great majority of patients with epilepsy are psychologically normal people and with the exception of the avoidance of obvious hazards, there should be no restrictions placed on their lives. Gordon(14) discusses the problem of chronic low back pain and the influence of favorable personality factors in the ability of cases with low back pain to return to work.

JOURNALS

During the past year, the *Journal of Occupational Medicine* was introduced. One of the regular departments in this journal concerns itself with abstracts of the current literature on mental health. This feature is written by Graham Taylor.

FOREIGN REPORTS

Dr. M. R. vanAlphen de Veer(15), Director Social Affairs (Medical Department) Philips, N. V. Philips' Gloeilampenfabrieken, Eindhoven, Nederland reports that on November 19, there will be at the Philips' Glow Lamp Works a symposium on Mental Health in Industry. The state of affairs of mental health in industry in Holland will be chiefly discussed. Two social psychologists will read a paper dealing with the worker, whereas another industrial psychologist and an industrial physician will deal with the problem from the side of the work.

Dr. vanAlphen de Veer mentioned in his letter to me the following books which have been recently published, viz :

1. *De Geestelijke Gezondheidszorg in Nederland* (Mental Health Care in the Netherlands) by Dr. C. J. B. J. Trimbos in which mental health in industry is also dealt with.

2. *Verzuimgeneigdheid bij dienstplichtige militairen in vrede's tijd* (Absenteeism with soldiers in times of peace) by J. A. C. de Kock van Leeuwen.

3. *De Geestelijke Stabiliteit* (Mental Stability considered under Military Conditions) by Dr. L. Th. H. S. Kortbeek. Dr. van Alphen de Veer states, "this book might also be of interest for industrial psychiatry because it contains a very fundamental study of mental stability in all its consequence."

4. *Samenleving in een technische tijd* (Society in a Technical Time) by Prof. Dr. I. F. Ph. A. Tellegen.

5. *Beeld en Werkelijkheid van de Twents-Achterhoekse Textielindustrie* (The Reality of the Textile Industry in a certain part of the Netherlands) by Th. J. Ijzerman.

Dr. Roger F. Tredgold(16) of London was requested by the federal government of Yugoslavia and by WHO to visit Yugoslavia as a consultant in the field of mental health in industry. His full report was submitted to WHO but a shorter report was published in the last issue of World Mental Health, the quarterly *Journal of the World Federation for Mental Health*. It is titled "Industrial Psychiatry in Yugoslavia." He made the following points, viz :

1. Because of the inspiration and imagination of Dr. Olga Macek, services, which in fact amount to simple psychotherapy on a wide, but necessarily superficial scale, were set up by various industrial doctors in Croatia, notably in Zagreb and Split.

2. In Split, where new industries are arising, each of 10 doctors under Dr. Stipisic has a "Mental Hygiene" room in his surgery, where he can see patients alone, at leisure. Each has had postgraduate psychiatric training and is doing psychotherapy.

3. All those persons he saw in Yugoslavia agreed that neurosis was increasing because, viz : 1. Of a changeover from agricultural life. 2. Of bad housing. 3. Of already existing organic disease which might itself be due to nutritional deficiency or hormonal imbalance, or dust in the environment (asthma) but which was badly treated by doctors with no knowledge of psychiatry, and thus became chronic.

4. Local psychiatrists, experienced in group discussion, join the meetings of industrial physicians and help in training programs for managers.

5. Although highly organized and competent, industry in Slovenia has fostered mostly physical medicine, but a pattern of counseling and "emotional first aid" is developing.

6. In Serbia, there is much interest and work in general mental health and in mental illness and health in industry. Group discussions are developed for managers and workers to work out their problems.

7. Alcoholism is a major problem in Yugoslavia. In one firm there was a correlation between chronic alcoholics and the "accident prone" which suggested that the same type of person might show either (or both) syndromes.

Dr. Tredgold in his letter to me stated the following,

I think it would be fair to say that there is a steady increase of general interest in the field of industrial psychiatry although actual work going on—in clinical practice, research or teaching—depends mostly on a few individuals' initiative in each country. In some cases these are industrial psychologists, in some, sociologists, in some, psychiatrists. Besides this there is certainly some pressure from managers to include psychology or psychiatry in their management training courses which are themselves very much on the increase in Britain. I believe that the trade-unionists are somewhat suspicious of this development on the grounds that they think the management is using "human relations" as a smoke screen to avoid discussing more serious problems, *e.g.* wages. This is indeed tragic as I believe that psychiatrists have it in their power to help the trade-unionists as much as they can help the management.

At the Annual Meeting of the World Federation for Mental Health held in Barcelona, Spain, in September, a day was given up to the discussion of problems concerning mental health in industry and a working party of some twenty people was formed to discuss this subject throughout the week. Various plans and proposals were made but their implementation, I am afraid, is much hampered by the lack of finance in this field.

Dr. B. Markovic(17), Central Institute of Hygiene, Zagreb, reports he is teaching 4 small groups of industrial doctors (totaling 45) the theory and practice of group techniques.

Dr. M. Hausner(18), Prague, Czechoslovakia stated the following facts in a letter:

1. All medical care in Czechoslovakia is entirely free of charge for the patient including hospitalization and drugs.

2. In large concerns, there are staff National Health Centers which have their own neurologist and psychiatrist working for them every week on a part-time plan at least. In small concerns with no specialists, the mental patients are sent to the District Medical Psychiatric Institutions.

3. The Faculty of Hygiene at the University in Prague has a psychiatric chair which sees its main task in studying the mental occupational distortions, in particular of a toxic nature.

4. Working rehabilitation centers for chronic psychotic patients exist. Persons with decreased working ability due to psychiatric defects are cared for by a special committee and suitable work is found.

TRAINING

The National Association for Mental Health has conducted 4 regional training institutes on mental health in business and industry in New Haven, Portland, Milwaukee and New Orleans during this year. Each institute is directed by Harry Levinson, Ph.D., director of industrial mental health for the Menninger Foundation, assisted by local psychiatrists and psychologists. Each institute focuses on the practical application of psychiatric knowledge to human relations in business and industry.

The Division of Mental Health in Industry, Menninger Foundation continues to hold separate training programs for occupational physicians and for executives.

The American Management Association at its Academy of Advanced Management, Saranac Lake, N. Y. has developed lectures on human relations in business and industry and on executive mental health for business and government executives.

Various educational institutions throughout the United States and Canada have held institutes on mental health in industry for management people.

REHABILITATION

The Executive Committee of the President's Committee on Employment of the

Physically Handicapped recently passed the following resolution,

The Executive Committee, noting the growing importance of the employment of persons with histories of emotional or behavior problems requiring special placement efforts, and further noting steps being taken by State Committees, hereby endorses an immediate and detailed study of the problem of incorporating promotional responsibilities for aiding the employment of such persons.

As a result of this resolution, Dr. Ralph T. Collins, a member of the Medical Committee of the President's Committee, was asked to chair a subcommittee of the Medical Committee to make specific recommendations as to how best to carry out the intent and principles of the Executive Committee's Resolution.

In New York State, Governor Nelson A. Rockefeller recently appointed Dr. Ralph T. Collins to the Governor's Council on Rehabilitation. Dr. Collins will represent neurology and psychiatry on the 9-man council.

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SOCIAL PSYCHIATRY

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Thomas Rennie, the late pioneer in this field wrote a 13-page definition of social psychiatry(59) in the first issue of a journal which is devoted to this subject. Our own brief definition, influenced by Rennie, defines social psychiatry as the study of psychiatric disorders and psychiatric therapy, hopefully including prevention, within a social setting. This implies that social psychiatry is defined as an exploration of social systems and culture and their impact on psychiatric phenomena, rather than as a type of psychiatric practice. Obviously, all psychiatry in relation to institutions—the courts and legal, military, governmental, educational, religious, industrial, community, and psychiatric institutions, *per se*, considered as social systems—would come under the purview of social psychiatry. As progress in these subfields is reviewed elsewhere, we shall attempt to focus on progress in the epidemiology of psychiatric disorders, on work in the areas of social system and culture studies, and on the general topic of personality and culture.

The history of social psychiatry has been reviewed recently by George Rosen(62). Of considerable interest also is a publication

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by the World Health Organization on social psychiatry and community attitudes(65). Talcott Parsons discussed, in a very stimulating article, changes in American society and their bearing on medical education and practice, with special consideration of problems in psychiatry and psychotherapy(52). Of interest also for the student of social psychiatry is the recently published *American Handbook of Psychiatry* containing Edward Stainbrook's paper on community of the psychiatric patient(68) and the article by Paul B. Lemkau(35) on the organization of the community for mental health services. Also in the *Handbook*, Gardner Murphy makes a brief and clear statement about social psychology(47).

During the past year two edited volumes pertaining to the field have been published (46, 69). The source book by Jaco(29) contains very interesting articles by Parsons(57), Eaton(10), Harvey L. Smith (64), and others. The most important collection of papers in social psychiatry is *Explorations in Social Psychiatry*, edited by Leighton, Clausen, and Wilson(34). These papers were mostly the outcome of a conference on social psychiatry sponsored by the Social Science Research Council. Included are contributions by Gruenberg(25), Hinkle and Wolff(28), Kubie (33), Tyhurst(70), Volkart and Michael (71), and others. The international counterpart to the above mentioned volumes is *Psychiatrie und Gesellschaft*, edited by Ehrhardt(11). Another collection of interest is the publication of the proceedings of a symposium on social psychiatry by Pasamanick and Knapp(54).

A number of major epidemiological investigations are under way, but final publication of the major studies in Stirling County, Nova Scotia, and the MidTown Project in Manhattan have not yet appeared as of this writing. In any case, we seem to be much closer to reliable data on prevalence, although true incidence data are not yet available. In the meantime, Malzberg (41, 42) continues to publish on various aspects of mental hospital statistics. A very significant study on the hospitalized mentally ill in the United States was undertaken by Morton Kramer(32). Arentsen and Stromgren, Scandinavian pioneers in the epidemiology of mental disorders, recently published data on hospitalized patients in Denmark(2). The relationship of bad housing conditions (measured by "lack of amenities") as bearing on the chances of admission to a mental hospital was examined by Lowe and Garrett(39). These authors suggest that such conditions of bad housing may be more important in determining hospitalization rates than social isolation, *per se* (as measured by proportion of single-person households in an area). They differ in this respect with the classic studies of Faris and Dunham, and suggest that these authors overemphasized the factor of social isolation. The changing pattern of admission rates since the turn of the century in England with respect to distribution by sex is also documented by these authors. In most of these studies, the confusion in regard to diagnostic nomenclature is still a major handicap.

A number of papers were devoted to a description of psychiatric patients and to patterns of behavior and mental disorder in various cultures and groups(3, 6, 7, 12, 14, 21, 31, 56, 76). Some of these are thoughtful, like Carstairs', or indicate a thorough acquaintance with the culture, such as Hes' paper. Berne, who introduces the term "comparative psychiatry" as synonymous with social psychiatry, argues against what he sees as the current bias toward cultural etiology of mental disorder, but approaches the problem of morbidity measurements of mental disorder in the Fiji Islands by a statistical *tour de force* based on cultural determinants! Opler wrote a review of the role of anthropology in psychiatry(50), and another collection of papers on clinical studies of culture conflict was edited by Georgene Seward(63). Of more than historical interest to psychiatrists is Margaret Mead's account(45) of the work of Ruth Benedict (author of *Patterns of Culture* and other books) and her contribution to a new approach in anthropology.

The paper by Richard and Katherine Gordon(24) is a study of the impact of the community on the emotional health of children in a suburban town. Many publications have appeared which dealt with problems of prevention and therapy in the

community. In this brief summary, we only mention Margaret Gildea's exploration of a school-centered mental health education project(22) and the Cummings' exciting book(9) on the fate of a community-centered mental health educational project.

In the last few years, there has been a very active interest in the exploration of families of psychiatric patients. Spiegel and Bell wrote a review(67) with an excellent bibliography on the families of psychiatric patients. Nathan Ackerman's book(1) and a collection of papers edited by Jules Masserman(43) represent two recently published volumes on this important subject. The work of Lidz, Fleck, and co-workers has resulted in a number of very significant papers on the families of schizophrenics (15, 36, 37, 38). Wynne *et al.*(72) published an interesting paper, based on the study at the National Institute of Mental Health, of families of schizophrenics.

A very thorough study of social class differences and their impact on the dynamics of the patient and his family was reported by Myers and Roberts(48) in *Social Class, Family Dynamics and Mental Illness*, companion volume to *Social Class and Mental Illness* by Hollingshead and Redlich. Myers and Roberts explored specifically the role of the family and home and the impact of social mobility in the community on the course of disorders of 50 schizophrenic and neurotic patients belonging to social classes III and V. The effect of social class on tolerance of deviant behavior and evidence that the degree of such tolerance on the part of family members is a key factor affecting the course of the mental patient's post-hospital experience has been reported in a series of papers by Freeman and Simmons (16, 17, 18, 19). Performance levels in discharged mental patients are seen as related to class factors and intrafamilial relationships. Though careful not to draw conclusions as to etiology in these studies, the authors make an important contribution to the understanding of social variants in disordered behavior. Closely related to these studies are the reports emanating from the Social Psychiatry Research Unit at the Maudsley Hospital in London. Brown's followup study(4, 5) on a cohort of discharged schizophrenics from the hospital showed the successful outcome (as measured by patients remaining out of the hospital for at least a year after discharge and social adjustment scales) to be related to the type of living group to which the patients went: patients staying with siblings and in lodgings did better than those staying with parents, with wives, and in large hostels. Furthermore, the outcome bore little relationship to the patient's age, recorded diagnosis, or length of stay in the hospital. Careful followup studies such as those mentioned above certainly constitute an important advance in the field of the epidemiology of mental disorder. Another followup study was reported by Hastings on 1,638 patients consecutively admitted to the psychiatric section of a university hospital(26). A long-term followup study was reported by O'Neal and Robins(49).

A comprehensive and thorough epidemiologic study is that of Ginzberg, Ginsberg, and Herma of the Conservation of Human Resources Project at Columbia University on the ineffective soldier(23). In 3 volumes, the records of men who were rejected or prematurely separated from the service in World War II were analyzed, and emotional and social reasons for breakdown and inefficiency were elucidated. The importance of this study transcends military objectives. The strong interest of the military in social studies was also expressed in the proceedings of a symposium organized by David Rioch(6) under Army auspices.

The problem of normality has been a special concern of social psychiatry. It was reexamined in a monograph by Marie Jahoda(30) and also by Redlich(57), who examined the social need for treatment and the relationship of such a need to hypothetical normality.

A major contribution to an understanding of a hospital society is William Caudill's study of a psychiatric teaching hospital(8). Observing and testing staff and patients with great sensitivity, Caudill draws a fascinating picture of the psychiatric hospital. His analysis is concluded with concrete recommendations towards achieving the goal of a therapeutic community within the psychiatric hospital. Wilmer's study of a therapeutic community orientation on a

Naval hospital admission ward(75) is another contribution in this area.

Other papers dealing with social aspects of psychiatry include Pasamanick and Rettig's on the prestige status of psychiatrists (55). These authors found that psychiatrists have the lowest prestige of all physicians. Private practitioners have only a little more prestige than state hospital psychiatrists. Pasamanick and others(53) also found that diagnostic classification depended largely on the orientation of psychiatrists on hospital wards. The adverse impact of cultural attitudes on psychiatric clinical judgment was reported in a paper by Wainwright (73). A social and professional split in the ranks of the psychiatric profession into analytic-psychological and directive-organic practitioners was reported by MacIver and Redlich(40). Redlich also discussed the impact of American culture on analytic therapies(58). An enlightening paper dealing with the effect of cultural variables on the psychotherapeutic process was published by Spiegel(66). Wheelis in a brilliant book(74) described the impact of a culture on its members who have lost their sense of identity and have turned to psychoanalysis in a quest for identity; they become disappointed in their search because analysis cannot provide an ideology. Erich Fromm also dealt in a rather polemic fashion with the problem of values and psychoanalysis in his book *Sigmund Freud and his Mission*(20). Another viewpoint on the cultural implications of psychoanalysis is the scholarly book by Philip Rieff(60). Related to social analysis of psychiatric disorders and practice is the monograph by Fein(13) on the complex subject of cost of psychiatric illness and treatment(8). It is apparent from even such a brief summary of recent progress as this, that many disciplines (anthropology, economics, psychology, psychiatry, public health, sociology) are actively working on the total fabric which we now call social psychiatry.

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CLINICAL NEUROLOGY

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CIRCULATION

Among the causes of cerebral arterial thrombosis, Elliott(30) lists hypertension, diabetes, polycythemia, thrombocythemia, hypercholesterolemia and, in young adults, porphyria. Strokes, like other illnesses which restrict carbohydrate intake, may cause a pseudodiabetic glucose tolerance curve. Thrombocythemia may cause cerebral thrombosis or hemorrhage without signs elsewhere. Before age 50, dissecting aneurysms of cerebral arteries mimic thrombosis(161).

Of 1,018 patients with cerebral thrombosis, 21% died in the initial attack(127). Half of the survivors were dead in 4 years, compared with 18% of a similar general population. Congestive failure, a severe initial attack or an early recurrence were ominous. Among 305 patients with infarcts, those of the brain stem had the best prognosis(95). Prospects for successful rehabilitation are less if the patient was physically inactive before the stroke, has a receptive aphasia, impaired intellect, severe or bilateral signs or infection of skin or urinary bladder(10).

Among 50 patients with confirmed internal carotid artery occlusion, 10 had transient or permanent blindness ; 9, hemianopsia ; 4, pupillary abnormality ; 4, extraocular palsies ; and 2, bruits over the opposite eye (44). In a group of 124 patients, Hollenhorst(62) found lowered retinal pressure in 83 and approximately one-tenth each had homolaterally : retinopathy, less hypertensive arteriolar narrowing, or occlusion of the central retinal artery or a branch. He also describes two patients with cotton wool patches, probably due to ischemic infarcts. Pavlou and Wolff(120) found the homolateral conjunctival vessels dilated and the flow of blood through them so slowed that individual cells could be seen. In contrast to arteriovenous fistula, there was a paucity of minute vessels.

Spalter(142) lists the contraindications to ophthalmodynamometry as retinal disease or high myopia which might cause retinal detachment, recent ocular surgery, central retinal artery or vein thrombosis and glaucoma. A fall in intraocular pressure

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when the systolic pressure is being obtained may cause a return of pulsations and necessitates a ten minute wait between readings. Transient blindness may occur at systolic pressure(103). Readings should be checked 3 times for reproducibility and are more sensitive if they are measured with the patient supine and then erect(138). Measurements were inconclusive in a third of 16 patients with occlusion of the carotid in the neck because of bilateral, multiple or partial occlusions(49).

Arteriography visualizes only the larger vessels. McDowell *et al.*(97) believe it is not advisable or helpful in the usual patient with adequate history and clinical findings of cerebral thrombosis. They report 11 deaths in examining 13 patients who were in a stupor or coma or whose clinical state was worsening. Keirns and Whiteleather(72) who had only one death and 3 transient hemiplegias following 1,535 angiograms recommend percutaneous injection of only 5 to 7 cc. of hypaque sodium in 1.5 seconds, which is about the normal rate of blood flow. In 626 angiograms, which included the neck, they found the carotid stenosed in 108 and occluded in 21. They recommend endarterectomy for stenosis or thrombosis when the latter does not prevent filling of the siphon via the ophthalmic artery.

Hyperventilation, particularly by artificial respiration causes sufficient vasoconstriction to be clinically effective in lowering acute intracranial hypertension(89).

Anticoagulant therapy of infarcts produced by homologous emboli in dogs did not reduce intravascular thrombosis(122). The infarcts were more hemorrhagic and the mortality rate was higher than in controls. In 55 patients, the outcome was no better with anticoagulants, and one-third bled (4 in the brain)(149). Another 56 patients had no bleeding and were improved slightly(13). A 20% incidence of hemorrhagic complications cause Groch *et al.*(48) to emphasize the warning of a "bloody tap" or xanthochromic spinal fluid. In anticoagulant overdosage(114) one mg. of protamine intravenously counteracts one mg. of heparin. Twenty-five mg. of Phytonadione (vitamin K) intravenously counteracts coumarins in 6 hours, and 50 mg. acts faster. In emergency, 1000 ml. of plasma (not necessarily fresh) given to a 70 kilogram man raises the prothrombin time from 5% to 30%.

Fibrinolysin (streptokinase), 200,000 units initially and then in divided daily doses is effective if given within 5 days of thrombosis(17, 34, 35). Later, it may be ineffective or cause arterial embolism. It must be followed by anticoagulant therapy to prevent new clots on the damaged intima. Patients must be followed with prothrombin time, fibrinolytic level assays, and semiquantitative fibrinogen determinations. It may cause slight fever, nausea, and vomiting, and rarely, urticaria. Resultant hemorrhagic diatheses may be controlled with intravenous hydrocortisone.

Half of 350 normal brains had anomalies of the circle of Willis(3). At 2,796 routine autopsies, incidental berry aneurysms were found in 137(16). McKinsock *et al.*(99) retrospectively analyzed their results with 260 patients who had aneurysms and found no significant difference between operated and nonoperated patients. When multiple aneurysms are found, if operation is indicated both sides should be treated. Intracerebral hemorrhages should not be evacuated in older patients(81).

Fifty of 100 cases of cerebral angioma had focal seizures(130). Forty had recurrent headache, half with migraine-like visual phenomena. Calcified streaks were seen in 20, and enlarged vascular channels in 15. None had polycythemia. Pneumoencephalograms in 28 indicated an expanding lesion in half, localized atrophy in one-third and generalized atrophy in two. Root pain was a prominent symptom in most of 19 patients with racemose angioma of the spinal cord (115). One-third had spastic paralysis without deep reflexes. Remissions occurred in 6. All spinal fluids had increased total protein, one was bloody and 5 had a block. A myelogram was diagnostic in 14 of 18.

Good circulation may persist in the legs with an occlusion of the abdominal aorta which causes an anterior spinal artery syndrome below T_7(20).

Six patients with an air embolism at once became comatose and remained so for two or more days(112). Retinal artery occlusion blinded 3, and one had a myocardial in-

farct. Three developed epilepsy, and psychiatric symptoms persisted in all 6.

Sudden blindness in older patients with occlusion of the central retinal artery or its branches is usually due to arteritis and may antedate other symptoms by months. ACTH given on the day of blindness restored sight in every case(119).

INFECTION

A poliomyelitis microflocculation test has been developed(134, 139) which becomes positive in the first few days of infection, rises four-fold, and declines rapidly, so that it indicates current or very recent polio infection. Because of cross reactions between types, it cannot be used for typing. The effect of vaccination on it is not yet known.

Sabin Type II attenuated live poliovruis vaccine was given to 198,965 children in Singapore(53) without untoward effects, and no Type II paralysis occurred. Six cases of Type I polio occurred in contrast to the 179 among 300,000 non-vaccinated children. In a Russian trial(141) there was a better antibody response than to Salk vaccine and no symptoms of lesions of nervous or other organs. Eight passages through susceptible children's intestines resulted in the periodic appearance of strains with slightly higher neutrotropic activity for monkeys, but in subsequent passages it returned to the previous level. Similar increases in virulence were observed in a Mexican trial(100) and some serologically susceptible children were resistant to vaccination apparently because current infection with non-polio virus blocked implantation of vaccine virus.

Two patients with proved mumps virus were comatose for 36 and 72 hours, but recovered without sequelae(118).

Downie(26) reviews evidence that Herpes Zoster represents a second more localized tissue invasion by Varicella virus.

Hosty *et al.*(64) have developed a human antirabies gamma globulin which will avoid the risks of horse serum, yet provide immediate antibody to inactivate virus introduced by exposure and protect long enough for active immunization to result.

Amphotericin B, 1 mg. per kilogram in adults, is effective against Cryptococcus (96) and Coccidioidal diseases(159). Lumbar punctures should be used to detect meningitis early. Intrathecal amphotericin, 0.7 mg. well diluted, may be necessary every 4 hours at first because of poor passage of amphotericin through the blood brain barrier. The prognosis may be good even though complement fixation titres remain high.

Adding streptomycin to massive penicillin therapy does not improve the outcome in pneumococcic meningitis(85). Early diagnosis is necessary for better treatment. Most deaths occurred when diagnosis was delayed 5 days.

Vomiting was a warning of otogenic meningitis in 38 children where other symptoms were masked by antibiotic treatment(56). Recovery was highest when treatment was given within 24 hours. Of 9 who convulsed, 8 died.

Intramuscular streptomycin and oral isoniazid, or PAS, was the best treatment of 207 patients with tuberculous meningitis (163) both as to survival and residual defects including ocular complications(105). Intrathecal streptomycin was not essential.

Leptospirosis is an increasingly recognized cause of aseptic meningitis(25, 29, 128, 131). Leptospira are numerous in the cerebro-spinal fluid during the prodromal period, but are absent 10 days later when the meningeal signs appear. Only agglutination tests will then establish the diagnosis. Icterus may not occur. Conjunctivitis is prominent and there may be a proximal neuropathy. Cells may not appear in the cerebro-spinal fluid for the first week, but then may persist for 5 months.

Prenatal serologic testing for syphilis continues to be necessary, for in the past decade a history of syphilis was obtained in one percent of mental defectives(9). The TPI and antilipoidal reactions in 386 spinal fluids confirm the specificity of the TPI test as an indication of central nervous system involvement by syphilis, but its significance regarding activity is unknown(5). In another 187 patients(77), positive complement fixation tests with Treponema Pallidum or Reiter's Protein indicated past or present central nervous system involvement, but not the activity of the process. It should be noted that storage in the deep freeze renders previously reactive fluids non-reactive.

A Lecithin-free cardiolipin antigen for complement fixation is less sensitive for syphilis, but more sensitive to biological false positive (BFP) reactors, *e.g.* sera from leprosy(131, 132). The BFP reaction is due to certain beta and gamma globulins(102).

Untoward penicillin reactions(50) have increased only due to increased use of penicillin. They are so serious that unnecessary use of penicillin should be restricted. Local toxicity is largely overcome. Systemic toxicity may cause peripheral neuropathy and transient psychosis. Microbiogenically there has been no decrease in sensitivity of treponema pallidum, but there are dangers of superinfection with resistant staphylococcus and monilia. Other risks include release of noxious products due to lysis of treponemas, Vitamin B and K deficiencies, and increased susceptibility to polio because of the injection. Allergic reactions of exanthematous, angio-edemal and serum sickness type can be counteracted by penicillinase, 5000 units per 100,000 units of penicillin. Penicillin is undoubtedly the superior antibiotic, but when the above complications proscribe its use, Chlortetracycline, Chloramphenicol and Oxytetracycline may be given, 30 grams p.o. over an eight day period. Erythromycin and Carbomycin are effective in total dose of 20 grams over 8 days(104).

Hahn *et al.*(52A) report on the cooperative clinics study of penicillin treatment of general paresis. Six million units of penicillin is ample treatment. Retreatment is indicated only when the initial course was less than six million units, when temporary improvement is followed by clinical progression or when there are more than 5 cells in the spinal fluid a year after treatment. Spinal fluid pleocytosis at the time of treatment indicates an active process more susceptible to treatment. Improvement may be striking; however, residual deficits depend on permanent brain damage prior to treatment. Prognosis is worse when the psychosis or the neurologic deficit are severe or of long duration. Work status at the time of treatment and the length of time since the patient worked at his usual job are of great prognostic import.

Herxheimer reactions are not reduced by starting with small doses. They are more frequent with spinal fluid pleocytosis. Pretreatment with sedation and anticonvulsants is advisable.

Symptomatic management of late syphilis(52) includes bracing, not surgery, for Charcot joints, transurethral prostatectomy for bladder symptoms and Prednisone for nerve deafness of congenital syphilis.

NEOPLASM

Certain astrocytomas are sensitive to x-ray therapy(18). Cerebellopontine angle tumor can cause sudden deafness initially (54).

Multiple myeloma not only causes neutropenia, but also interferes with antibody formation predisposing the patient to pneumonia and meningitis(42).

Fatal intracranial hemorrhage in leukemia is not always due to thrombocytopenia (37). In leukemia(65) the "lymphocytes" in the cerebro-spinal fluid can be seen with supravital stains to be leukemic cells. Radiation therapy is more effective than chemotherapy for cerebral symptoms. An acute disseminated cerebral demyelination is sometimes associated with reticuloendothelial tumors(14, 88). Sarcoid must be added to the tumors causing myopathy(57). Neurological symptoms in systemic lupus erythematosis make the prognosis grave(129).

Instead of neuropathy, bronchial carcinoma may cause depression, intellect impairment and stupor(98).

Metastases to the spinal cord may be accurately located by the accompanying herpes zoster(7). Decompression of spinal metastases is not likely to help if flaccid paraplegia develops in 72 hours, or if sensory loss is complete.

Among 49 patients with hepatic coma, azotemia and oliguria occurred only in those who died. Those in stupor had respiratory alkalosis(148). In dogs, alteration of the pH gradient by respiratory alkatosis increased the ammonia concentration in the brain two or three times normal(143).

Low caeruloplasmin levels have been found only in hepatolenticular degeneration. To account for the wide scatter of caeruloplasmin levels in asymptomatic patients and siblings, Bearn(8) suggests that there are two genetically determined metabolic blocks, one lowering caeruloplasmin and a rarer one which doesn't. He suggests

the use of a tolerance test with oestrogens which markedly elevate caeruloplasmin levels in normals and Wilson's Disease. Curzon(24) relates the 4 tight copper bonds of caeruloplasmin to the location of histidine and cysteine in the molecule. Increased intestinal absorption of copper may result from lack of caeruloplasmin copper in the mucosal cells to block it. Aminoaciduria is probably due to increased copper in the kidney for it does not accompany low caeruloplasmin in all patients. Cummings (23) uses potassium sulfide, 20 mg., t.i.d., to hinder copper absorption from the intestine. BAL helps some patients. Penicillamine seems to remove copper better from liver than brain. Three cases of granulocytopenia have occurred during penicillamine treatment, perhaps due to pyridoxine antagonism(152).

METABOLISM

In 196 sural nerve biopsies in diabetes mellitus, intraneural vascular lesions were greater with neuropathy. Neuropathy increased with duration of diabetes, advancing age and vascular change in other organs(32). Optic neuritis developed gradually in 14 uncontrolled diabetics, and control of the diabetes arrested the visual loss in 11(137). The pupil is usually spared with paralysis of extraocular movements in diabetes. Ocular pain is common(74). Peripheral neuropathy in Cushing syndrome may be related to the diabetes(66).

Paraesthesias, burning pains, sometimes radicular, occur in half the patients with idiopathic and radio-iodine induced Myxedema(22). Symptoms are disproportionate to findings. Response to treatment is complete. In 20 cases of thyrotoxic myopathy (59) weakness was proximal in 19. Those without eye signs had a longer course.

In pernicious anemia, visual impairment due to retrobulbar neuropathy may precede other neurologic signs and even anemia, so a Shilling Test is helpful(55). Mental changes due to lesions of the cerebral white matter never preceded cord involvement, but like them did not parallel the anemia (156). Prognosis depends on the duration of symptoms, and there may be relapses with infections. By radioactive tracer methods Grösbeck(45) has calculated the B12 turnover in man as 300 micrograms per day.

Patients with Korsakoff psychosis have impaired ability to think coherently and reason with data immediately before them (150). Confabulation is not a primary symptom, but results from their forgetting more and at a steeper rate than controls(144). A single, symmetrical sharply outlined focus of myelin destruction was found in the rostral pons of four alcoholic patients. In two of them it had caused rapid, flaccid tetraplegia(2).

Desoxycorticosterone was the only steroid that did not aggravate seizures(60). Acute increases of intracranial pressure cause eosinopenia, sodium retention and increased steroid excretion(12).

Hypercalcemic states may increase cerebro-spinal fluid total protein up to 170 mg. percent(27).

Renal tubular malabsorption may cause proximal limb pain and weakness which responds to vitamin D and potassium(162).

Magnesium depletion is an important cause of twitching, tremor and fasciculation in malnourished patients(126). Clinical symptoms correlate better with intracellular (RBC) than extracellular (serum) levels of magnesium. The better treatment is magnesium chloride which ionizes more readily than magnesium sulfate(140).

Serum sodium should be checked daily in unconscious patients, particularly children, because high sodium induces subdural, subarachnoid and intracerebral hemorrhages(90).

The light skin pigmentation in phenylketonuria is of systemic, not peripheral origin(58). The phenylketonuria paper test (Phenistix) with ferric chloride, magnesium and buffer, is effective and simpler than the ferric chloride test(41). Using it, Goldberg(53) found that half the carriers of the gene do not excrete porphobilinogen and during remissions patients may not. Attacks increase in the first trimester of pregnancy and just before delivery, during infections and after barbiturates, particularly those with an allyl group. Tachycardia is a good index of the activity of the disease.

MOVEMENT DISORDERS

Twitchell(146) ascribes athetosis to a cerebral immaturity with inability to sup-

press antagonistic movements resulting from concurrent grasping and avoiding responses, mass movements of neck and labyrinthine origin, and there is a lack of eye-hand coordination.

Proclorperazine is added to the drugs which cause extrapyramidal reactions(117). The differing cortical and subcortical electrical effects of chlorpromazine, reserpine tremorine and pentobarbital are reported by Kaelber and Correl(71).

Careful initial and followup history regarding ocular pain, halos around lights, constricting fields and dimming vision will keep the risk of glaucoma small in anti-parkinson drug therapy(27). The newer synthetic acetylcholine inhibitors have less peripheral but more cortical effect causing hallucinations(123).

Kuru, which principally attacks adult Indonesian women, causing ataxia, tremor and death within a year, is probably due to a genetic factor(38). Pathologically there is widespread neuronal degeneration, myelin loss predominantly in spino-cerebellar and corticospinal tracts, an intense astro- and micro-glial proliferation, scattered perivascular cuffing and in half the cases anisotropic placques(75).

Acute cerebellar ataxia of children, if severe at onset, may last for years(155).

Rythmical myoclonus can originate from the brain stem or the spinal cord(91). The many sites of tonic and clonic head movements are reviewed by Mettler(101).

OTHER CENTRAL NERVOUS SYSTEM CONDITIONS

Additional acrocentric chromosomes in the smallest size range in Mongoloid children suggests that the primary disorder is one of oogenesis(83, 36, 69).

A special number of the *Acta Neurologica et Psychiatrica, Belgica,* has been devoted to multiple sclerosis(1). Plum and Fog (124) in a detailed chemical comparison of 78 patients and 49 controls found in the cerebral spinal fluids an increase of total protein in 50%, and of gamma globulin in 65%. Cholesterol also was increased. Green *et al.*(46) found the latter in a number of other conditions, but only in multiple sclerosis was the ester over 60% of the total cholesterol. On electrophoresis of serum of multiple sclerosis patients, total protein was lowered in the majority, albumin was lowered in all, and there was a relative increase in gamma and alpha-two globulins proportional to the duration and state of the disease(33). A 1.5 degree gradual increase of body temperature caused 13 of 14 multiple sclerosis patients to develop symptoms(111). Watson(153) reports a temporary, partial remission of symptoms while the body temperature was lowered one degree.

Quantitative assay of compounds in isolated fresh nerve cells and glial cells from control and stimulated animals suggests that glial cells donate energy or food to the nerve cells they serve(67).

Hemispherectomy(154) including corpus striatum, thalamus and hypothalamus in monkeys caused loss of fine movements but not of standing, walking and climbing. It also caused contralateral anaesthesia, except for pain which could still be accurately localized on the face. The degree of impairment of the "highest integrative activities" of man is a function of the total number of cortical neurons damaged, not their site or degree of dispersal(15).

Auditory illusions are usually caused by bilateral temporal lesions; visual illusions by nondominant temporal lesions(108).

Changing direction of joint movement causes a reciprocal shift of activity of adjacent post central gyrus neurons(106). There are cortical and subcortical inhibitory mechanisms improving touch discrimination(107). The superficial abdominal reflexes are polysynaptic spinal reflexes influenced by cerebral and spinal effects on the internuncial neurons(79, 51).

The spinal cord should be explored and electrically stimulated in traumatic paraplegia(109). When transection is partial, procaine injection of peripheral nerves, under direct vision, may relieve mass reflex spasm(110). Spinal alcohol injection is condemned.

CRANIAL AND PERIPHERAL NERVES

An attack of trigeminal neuralgia is precipitated by a summation of touch stimuli and is followed by a relatively refractory period which can be increased by hydantoin(79). Except in the rare instances when it is due to multiple sclerosis or

tumor of the middle or posterior fossa, it may be relieved in 73% of patients by "decompression" of the root as it crosses the apex of the petrous temporal bone(40). Costen has reviewed the causes and treatment of his mandibular joint syndrome(21).

All but 2% of patients with Bell's palsy recover well; operative risks of decompression are greater than this. Exercise should be prohibited until voluntary movement begins. Decompression should be reserved for those who fail to show any recovery after two months(157) even when the paralysis is secondary to basal skull fracture(86). Treatment with split hypoglossal grafts was successful and free of complications in 11 of 14 patients(73).

Microelectrode study indicates that sounds are localized by special units of the accessory superior olivary nuclei(39).

Ultrasonic treatment can destroy the whole labyrinth relieving Meniere's attacks without deafness(4).

Peripheral entrapment syndromes of the upper extremity have been reviewed by Thompson and Kopell(145).

MUSCLE

Myasthenia gravis in 4 boys whose parents and sisters were normal suggests that the genetic factor is a sex linked recessive (151). Impaired progesterone metabolism to pregnandiol in myasthenia is restored by thymectomy, indicating an effect on the liver(135). At death, 5 myasthenic patients histochemically had almost no acetylcholinesterase inhibition, despite large antemortem doses of neostigmine, indicating an additional action of neostigmine(19). That this action is one on membrane function is suggested by the potentiating effect of veratrine which causes a slight net loss of potassium from the muscle(61).

In the treatment of myotonia, quinine was least effective, prednisone more effective, and procaine amide most effective (but the latter may cause agranulocytosis) (87). Potassium binding exchange resins have lessened myotonia in 6 cases(68, 146).

A reversible proximal myopathy due to steroids(158) is not due to potassium loss (121).

Use of short acting muscle relaxants (suxamethonium compounds) is followed in a third of the patients by transient muscle pain and stiffness so severe that poliomyelitis or meningitis may be considered(82).

PROCEDURES

Because sudden death immediately after tracheotomy is due to rapid reversal of the pre-existing respiratory acidosis, giving oxygen alone is dangerous, and vasopressors should be at hand(47). Chest x-ray before tracheotomy in infants is more reliable than recourse to an age table of crico-carinate distance, and prevents the pulmonary complications of a long cannula(160).

Cineradiography helps to clarify the reason some patients have difficulty with glossopharyngeal breathing and correct it(92). Radiologic and neurologic manifestations of spondylosis are reviewed by Epstein and Epstein(31) and the x-ray changes of carniopharyngiomas by Barnett(6).

Complications, other than headache, of lumbar puncture when cerebro-spinal fluid pressure is increased, are below 1.2% and actually are much more frequent when there is no papilloedema(78).

Discography is not superior to myelography, but may be a useful supplement(116). Repeat myelograms were done in 38 patients because of postoperative recurrence of symptoms(136). Operation confirmed a new disc at a new level in 5, and a recurrent herniation at the old level in 11 of the 16 who had defects. Nineteen of the 22 whose myelograms were normal gradually recovered without operation.

Air embolism complicating pneumoencephalography need not be fatal(70). A short bevel needle lessens the chance of the opening being half in a vessel. A stethoscope over the heart during the injection of the first milliliters of air permits one to hear the "mill wheel" murmur of air in the ventricle before a fatal quantity of air has been injected. Injection is stopped and the patient is turned onto his left side in steep Trendelenberg so that the bubbles are trapped in the apex and circulation is maintained. The air and frothy blood can then be aspirated by a needle inserted in the right ventricle.

Dog experiments demonstrate an almost all-or-none effect of exposure of the vascular bed to toxic concentrations of contrast

media(93). Even maintaining adequate intervals between injections of small volumes of dye, Brendler and Hayes(11) limit angiography in patients likely to have atherosclerosis or over 50 years old. Although angiography is relatively quick and safe, 75% accurate in localization and by vascularity gives some evidence of tumor type, it may not indicate the full extent of a tumor and may fail to demonstrate an occipital, parietal, deep central or small tumor (113). In agenesis of the corpus callosum, the anterior cerebral artery shadow is more vertical and turns backward sooner(63).

A new technique of echoencephalography permits identification and demonstration of displacement of the pineal, whether or not it is calcified in adults or children (84).

Failure of the foetal innervation of muscles results in a distinctive electromyogram with small fibrillations and a hyperirritability to mechanical stimulation causing positive sharp waves(94). Two days are needed for electromyographic changes to appear after a ruptured disc(76).

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ALCOHOLISM

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An important re-evaluation of the Jellinek formula appeared in the June issue of the Quarterly Journal of Studies on Alcohol. John Seeley(1) states,

A logical demonstration, believed to be conclusive, is made that the present most commonly used method of estimating the prevalence of alcoholism is in error to so serious an extent that assertions as to "the magnitude of the problem" are misleading, and scientific studies based on these data, quite probably, invalid.

Jellinek(2) himself agrees with Brenner's (3) criticism of PD in the numerator of the "Jellinek formula" and concludes,

Generally, I would not be in favor of the continued use of my formula, nor of any modification of it, as there are too many fluctuating factors present. Much more to be desired is a new basis, and particularly actual field surveys.

A group(4) investigating the low level of serum magnesium in patients with delirium tremens and alcoholic hallucinosis reports that because sweat contains an extremely high concentration of magnesium, severe sweating in delirium tremens may be a significant factor affecting serum magnesium concentration. Upon cessation of symptoms serum magnesium levels rose in every case, regardless of initial levels. The authors speculate as to whether the deficit results from, or causes delirium, increased psychomotor agitation, disorientation, hyperhydrosis and hallucinosis.

Clark and Halpieu(5) found that in 56 dogs, 100-125 mg. of animal charcoal per kg. of weight produced sensitization to alcohol comparable to that produced by 0.5 to 1.0 mg. per kg. of calcium carbimide and 5.0 to 10.0 mg. per kg. of disulfiram. In another research experiment(6), 3 of 4 groups of rats on a nutritionally adequate but calorically deficient diet were given varying amounts of sucrose supplement and a fourth was given a 15% alcohol solution instead of drinking water. From a checkup of the rats' caloric intake and rate of weight gain, the authors conclude that all the energy present in alcohol appears to be available in the animal body for growth. In a study of water- and alcohol-drinking habits of rats, the same team(7) noted that only 5 of 25 rats made consistent choices when the drinking dish location was varied because the rats' drinking preferences were influenced by their being either right- or left-pawed. They concluded that "had we not become aware of the importance to some rats of the location of the fountains . . . we might have inadvertently attributed the differences in alcohol intake to some genetic factor." Moving the alcohol dispenser cured some rats' "alcoholism." In another study(8), alcohol ingestion in mice was found to increase following administration of sodium chloride, which may be related to a secondary response due to liver dysfunction. Ditman and Mooney(9), studying the effects of phenyltoloxamine

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(PRN) in 26 chronic alcoholics, found no better effects from PRN than from placebos.

Two studies, the one on the combined effects of alcohol and phenobarbitone(10), the other on alcohol and chlorpromazine (11), showed that in combination with alcohol, both drugs potentiated the effects of alcohol. The combined effects of half doses of alcohol and of either drug were greater than those following a single full dose of alcohol.

It seems important, considering the controversy about the value of insulin in the treatment of acute alcoholism, that alcohol metabolism was 21% higher in those subjects given insulin and 19% higher in those given insulin plus glucose, than in controls (12). Also of interest are Lundquist and Wolthers' conclusions(13) that the average rate of alcohol elimination in man is increased 6% after glucose administration and by 34% after fructose.

Partridge(14), in England, advocates chlorpromazine or promazine and so-called modified insulin treatment for controlling delirium tremens and suggests that modified insulin treatment is also valuable for detoxicating the alcoholic who remains short of delirium. He suggests vitamin dosage given intravenously, added to an intravenous infusion of 1,000 to 2,000 ml. of 10% dextrose in normal saline containing also 30 units of insulin. Allgen *et al.*(15), obtained excellent results in the treatment of 7 patients with severe delirium tremens with Viadril, whose only complication was thrombophlebitis in recipient veins. According to Kofman(16), the treatment of 114 alcoholics receiving perphenazine proved more satisfactory than that of 163 receiving reserpine because of the potent action and lack of side effects of intramuscular perphenazine in short-term therapy. Nocturia was found to be a distressing side effect of temposil in one report(17). In Glatt's(18) comparative study of disulfiram and temposil, on the whole the reactions to temposil were much less severe than to disulfiram, but the administration of temposil tests in an outpatient clinic seemed risky because of possible craving reactivation. Glatt suggests that choice of drugs may depend on the individual patient's personality; he recommends psychotherapy and AA affiliation in conjunction with physical therapy.

Copenhagen since 1953(19) has demonstrated a unified medical approach with a consistent treatment program for alcoholism: it includes an outpatient alcoholic clinic; a 37-bed sanatorium for males; and agreements with the psychiatric admission departments to accept acute cases and with the outpatient municipal hospital clinics and TB dispensaries to treat all somatic conditions. The sanatorium's figures for a 3-year period show that 38% of 1,312 patients were improved. Other large Danish towns have established treatment centers with uniform treatment practices.

Outpatient treatment in Poland(20), under difficult conditions and without the public health authorities' cooperation, consists of educational psychotherapy supplemented by Antikol (disulfiram), sedatives, tranquilizers and large doses of vitamins B and C. Results of a 3- to 6-month follow-up study in 1955 showed one third of the outpatients were "socially useful."

According to an abstract(21) from the 1956 Russian medical encyclopedia, the total alcohol consumption in Russia per capita in 1948-50 was 38% less than in 1891 and much lower than in capitalist countries. The Moscow traffic regulations division showed that 27% of accidents involving pedestrians in 1953-54 resulted from pedestrian intoxication and 17% of traffic accidents resulted from driver intoxication. Drunkenness constitutes no mitigating circumstance for any crime and increases the responsibility in motor accidents. Hypnotherapy and conditioned-reflex therapy are emphasized. By official estimates, alcoholics, mostly chronic alcoholics without psychosis, occupied 2% of psychoneurologic institution beds in the 1950-55 period.

Because of the high incidence (25%) of ulcer histories in 600 male alcoholic patients, an Austrian investigator(22) considered the "most substantial link between alcohol and stomach ulcer . . . a common psychodynamic factor," and addiction following gastric surgery a displacement of symptoms.

In a re-evaluation of the familiar statistics about annual loss of time and high accident rates among problem drinkers,

2 investigators(23) compared 3 groups, 1 of 48 problem drinkers and 2 control groups, whose average tenure was about 28 years in a large U. S. company. Overall, the problem drinkers were absent 2.5 times as many days, cost 3 times as much in sickness payments and had 3.6 times as many accidents as did the matched controls.

The Uniform Vehicle Code, Model Chemistry Test Law defining drunkenness by weight of blood alcohol was used in 27 states as of July 1, 1957. The definition is: at or below 0.05%, the defendant is not considered drunk; at over 0.05 but under 0.15%, he is not presumed to be drunk but the findings may be considered in determining his guilt; and at 0.15% or above, he is considered drunk. In a study(24) of all single vehicle fatal accidents in Westchester County for a year's period, 49% of the fatalities had 0.15% blood alcohol levels at death; 20% had 0.05 to 0.15%; and 27% had no blood alcohol. The authors conclude that alcohol usage was probably a causal factor in the deaths of one half or more of the drivers killed in single vehicle accidents in that county over an 8-year period. From these data and a similar Delaware police study, in which 10 of 15 fatally injured drivers had 0.15% or higher blood alcohol levels, they suggest that the high alcohol levels observed in this type of accident may exist in other U. S. sections.

The San Francisco Community Health Services Committee(25) urged that coverage of hospital and follow-up outpatient treatment for alcoholics be studied by companies offering group health insurance. One Blue Cross contract, covering the C & H Sugar Refining Corporation and the Refinery Workers union, already includes alcoholic care if provided in a general hospital.

The September issue of the *Quarterly Journal of Studies on Alcohol* presents substantially the same papers that were read at the October 1958 Research Conference on Problems of Alcohol and Alcoholism.

The Alcoholism Research Foundation of Ontario(26) recently published its first extensive statistical report of alcohol use and alcoholism in Canada from 1871 to 1956. Although the prevalence figures are based on the Jellinek formula, other figures regarding alcohol consumption, the size and characteristics of the drinking population and convictions for offenses involving alcohol are not affected.

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GERIATRICS

KARL M. BOWMAN, M.D., AND BERNICE ENGLE, M.A.[1]

The WHO advisory group on public health aspects of the old, recently recommended various provisions for the tremendous increases, proportional and absolute, in aging populations. Japan has had the largest proportional increase. In Russia the average life span has more than doubled since 1917; Khrushchev's average contemporary will die at age 67. The U. S. Social Security Administration began late in 1959 a semiannual count of centenarians on the old-age and survivors' insurance rolls; the last count, in 1950, showed 4,474 centenarians.

Various ataractic drugs reported on favorably in the treatment of fairly large series of elderly psychiatric patients under controlled conditions, and without undesirable side effects, include hydroxyzine, buclizine, and methylphenidate hydrochloride. Tranquilizers were successfully combined with a vitamin-hormone stimulant (Ritonic) and with a nutritional-hormone supplement (Neobon).

Poor results were also reported. A variant of diphenhydramine hydrochloride (Covatin) was ineffective in 14 elderly female patients treated for 8 weeks, as was oral pentamethylenetetrazol in 44 senile patients treated under control conditions. Procaine hydrochloride, praised as a Roumanian wonder drug, was found to be no panacea, but merely a mild activator of the pituitary-adrenal system. The use of Tofranil (250 mg. daily) in 6 elderly psychiatric patients was followed by a sudden reaction, with coarse tremor in all limbs, present even at rest. The tremor cleared quickly upon withdrawal of the drug, which was resumed in lower dosage.

Reports by Chow(1) and by Droller and Dossett(2) indicate that vitamin B_{12} deficiency may be a cause of senile dementia and confusional states. Settel(3) found a mild to moderate protein depletion and negative nitrogen balance in 32 geriatric patients (aged 62-89) studied for 8 to 10 months.

Birren(4) reported among the results of an intensive study of 59 men aged 55-65, living in the community, that age was not necessarily accompanied by a change in the cerebral blood flow and cerebral metabolism; and that the demonstrable changes in mental abilities were much smaller than those previously reported. According to an extensive review(5) of current trends in problems of the aged, in general, the majority of the biologic, genetic, cultural and psychologic factors favor females over males in health and longevity.

According to a study(6) of 3 groups of men divided into age levels from 30 to 60, the serum cholesterol level, the frequency of arcus senilis and the incidence of coronary artery disease were much higher in the group who had an intense drive for achievement and were continually involved in competitive efforts, than in those characterized essentially by the converse pattern.

An extensive review(7) showed increased use of psychotherapy with geriatric patients; supportive approaches and active therapy predominated over insight therapy. In the few reports dealing with group psychotherapy, results were more systematically evaluated than in individual therapy, perhaps because of rather large samples of institutionalized patients and controls. Rosenthal(8) reported successful psychotherapy of about 30 elderly patients, most of whom were treated just like younger patients. Both writers advise extensive research into the idea that persons beyond a certain age (say, 40) are not amenable to psychotherapy.

The standard for performance by older people on the Wechsler Adult Intelligence Scale (WAIS) was established on 352 subjects in metropolitan Kansas City. This standard, tentatively accepted by Wechsler as a national norm, was tested by Eisdorfer *et al.*(9) on 130 normal subjects, aged 60-75, and on 32 mental hospital patients in North Carolina. Since the results—a higher Verbal than Performance IQ score in 82%, except for the hospitalized group aged 70-74—

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contradict the Kansas City norms, the authors question the generality of this sample as the basis for national norms.

Owens(10) reexamined Army Alpha test scores collected in 1950 on 127 men who had taken the test as college freshmen in 1919. Both increases and decreases in scores were observed, but the changes from age 20 to age 50 were unrelated to initial ability levels. Hence Owens concludes that age is not kinder to the gifted few. No data exist as to the relationship after age 50.

A paired-associate learning test(11), given to 18 elderly psychiatric patients and a control group, was found to be sensitive to memory impairment, without dependence on intellectual functioning; problems of standardization were being investigated.

In a comparative performance test on older and younger subjects, Griew(12) presented stimuli from varying numbers (up to 8) of signal sources for simple reaction time. The performance of younger subjects did not seriously deteriorate until the number of signal sources reached 8, while that of older ones deteriorated when the number of alternative sources was increased from 1 to 2.

A few interesting plans concern retired professional persons. The American Association on Emeriti has listed about 13,000 emeriti, for whom employment or other benefits are sought. The entire full-time faculty of Hastings College of Law, San Francisco, are emeriti from famous law schools. Increased use of retirement-age professors has been recommended by several educational committees. This past year Judge Learned Hand, at age 87, completed 50 years' service as a Federal judge.

The AMA has urged physicians to adjust fees for medical services and to encourage the development of suitable prepaid health plans for those over age 65. California Physicians Service recently adopted MD-Plan 65, designed to carry out these recommendations. About 33 states reported progress in elderly health care. Several writers have noted that many expenses listed as medical care really involve expenses of housing, food service, and home nursing care.

In the Scandinavian countries—67 is the national pension age—350 new homes for about 15,000 aged persons have been built in the past 10 years. A new career, with good pay and ample living quarters, for suitable women is that of director of an old age home, based on a 2-year training.

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EPILEPSY

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PHYSIOLOGY

There is increasing evidence that the neurophysiological bases of seizures involve: a synchronization and an increase rate of firing of neuronal units and some active relationship between excitatory and inhibitory processes(1, 2, 3, 4, 5, 6, 7, 8, 9). Cortical discharging foci may persist and propagate independent of any subcortical influence(10, 11) although some subcortical regions, particularly certain medial thalamic areas, can exert a marked in-

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fluence on these cortical foci(12, 13, 14, 15); also, other brainstem areas may produce tonic seizures independent of cortical involvement(16, 17).

BIOCHEMISTRY

The metabolic steps of the glutamic acid-gamma aminobutyric acid (GABA) cycle appear to be fairly well accepted: glutamic acid to GABA by the action of glutamic acid decarboxylase (GAD) plus pyridoxine; GABA plus alphaketoglutaric acid by the action of a transaminase plus, again, pyridoxine to succinic semialdehyde; then by a dehydrogenase(18, 19, 20) to succinate and then to glutamic acid. This succinate path is sufficient to account for all the GABA catabolism(21). Pyridoxine antagonists can cause seizures(22, 23, 24) which are stopped by the administration of B_6. The comparative distribution of the transaminase and GAD is such as to suggest that the GAD is the limiting factor (25). The catabolic limb of this cycle involves a portion of the citric acid cycle; hence, it is suggested that the GABA cycle is primarily a regulator for available energy (26). Considerable doubt has been cast on GABA being *the* inhibitor neurohormone (27, 28, 29, 30) although most evidence points to it or some other naturally occurring amino acid having important inhibitory and/or excitatory effects on neurons (23, 31, 32, 33, 34, 35, 36, 37, 38). Its actual mechanism remains theoretical (39, 40, 41, 42).

Other biochemical studies report that: increase seizure susceptibility is inversely related to the ratio of extracellular to cellular sodium, directly related to the ratio of cellular to extracellular brain water and related to the rise in brain carbonic anhydrase with age and a reciprocal fall in total brain carbon dioxide(43); after an initial rise, the brain cholinesterase falls again as the animal ages(44); and GABA has an antagonistic effect on serotonin, at least in the guinea pig ileum(45).

PHARMACOLOGY

Dilantin unlike Spirodone, Tridione or phenobarbital has no effect on primary seizure foci but it, like Spirodone and phenobarbital, does limit cortical spread of seizures(46). Although Dilantin has no effect on carbonic anhydrase, it has an additive effect with and is similar in raising threshold in hyponatremic mice as the carbonic anhydrase inhibitor methazolamide(47). Dilantin, Thiantoin, Mesantoin, and Tridione in chronic(48) and acute(49) doses produces a reduction in brain acetylcholine. A single intravenous dose of Dilantin has its maximum effect in 15-30 minutes and then slowly falls off so that it is without effect after 8 hours(50). Diamox enters the brain first via the cerebrospinal fluid and is only later transported across the blood-brain-barrier(51). Brain carbonic anhydrase may not be directly involved in the *persistence* of methazolamide's anti-convulsant action(52).

PATHOLOGY

Several pathological reports again stress the importance of lesions in Ammon's horn or the "entorhinal" area in psychomotor epilepsies(53, 54, 55, 56, 57, 58, 59, 60) although it is not settled whether the Ammon's horn lesions are primary or secondary (61).

CLINICAL

Mullan and Penfield conclude that generally, visual illusions or the sense of familiarity arise from the minor temporal lobe while auditory illusions and a sense of fear may arise from either temporal lobe(62). Paroxysmal disturbances of body image may be associated with frontoparieto-temporal lesions on the minor side(63). Experimental "psychomotor" seizures can be elicited from stimulation of the anterior or posterior limbic lobe(64). The precise pattern of a focal motor seizure is determined partly by anatomical location of the focus (and this may be at a considerable distance to the motor area) and by the parameters of stimulation(65). Nocturnal seizures are more frequently associated with mediobasal hippocampal foci than foci over the convexity(66). There was a positive family history in 12.5% of patients studied for a single seizure(67) and in 15% of patients with petit mal or 9% with focal seizures (68). Based on the incidence of epilepsy in Rochester, Minnesota, the estimated prevalence in the U. S. is 522,000–757,000

(69). The risk of having a "cryptogenic epileptic" child is increased in older primiparas(70). Four series(71, 72, 73, 74) reviewed 1,310 epilepsies of late onset. Convulsions in newborns(75) and cases with "hypsarrhythmia"(76) were reviewed; both carry poor prognoses. The height of the fever rather than the rate of rise may be the important factor in febrile convulsions(77). Antipyretics, particularly amidopyrine, may be aneleptic(78). Seizures may precede the diagnosis of brain tumor by many years(79). A number of cases of musicogenic epilepsy or related phenomenon are reported(80, 81, 82, 83, 84) as are patients with photosensitive epilepsy(85, 86). Five cases of "epileptic cephalea" are reported(87). Among reports of interesting cases of epilepsy are: 4 cases with paroxysmal "hypersexuality" with temporal lobe foci(88), epilepsy in one Siamese twin (89), nystagmus associated with psychomotor and focal seizures(90), familial epilepsy, albuminuria, and aminoaciduria(91), and familial epilepsy with aplasia of the corpus callosum(92). Differentiation between "anoxic convulsions" and epilepsy in children(93), temporal lobe and petit mal epilepsy(94), hypoglycemia and epilepsy(95), and vestibular seizures due to temporal cortical foci and vestibulogenic seizures due to stimulation of vestibular nuclei(96) are discussed. There is a high correlation of breech deliveries with idiopathic" epilepsy but not with epileptics having focal EEG abnormalities(97). Some other correlations are: 22% of 370 cases of cerebral palsy have convulsions(98); about 50% of patients with cerebral abscesses develop convulsions(99); 18% of children with supratentorial brain tumors(100) and 16% of patients with glioblastomas(101) have convulsions as their initial symptom; convulsions may occur very early—7 weeks of age(102)—and are frequent in children with cerebral angiomatous malformations; seizures are the initial symptoms in 44% of cases of porencephaly(103); 5.6% of cases of closed brain trauma develop epilepsy and this usually begins one-half to one year after the injury(104); 20% of patients with hypertensive encephalopathy (105), 20% of patients with carotid insufficiency(106), about 4% of patients with congenital or acquired aortic stenosis(107), and 55% of patients with spontaneous intracerebral hematomata(108) have seizures; 95% of cases of Lissauer's paresis (109) and 21% of patients with various types of neurosyphilis(110) have seizures; convulsions are relatively common in cerebral paragonimiasis(111), exanthema subitum(112), and during the acute stages of Western Equine encephalitis (but not as a late sequelae)(113); about 3-4% of children with seizures also have migraine (114); seizures are uncommon as a neurological complication of leukemia(115); 18.2% of patients with systemic lupus erythematosis have convulsions(116); 18% of post-prefrontal lobotomy (Freeman and Watts) who are still alive have had convulsions(117); 6% of patients with acute intermittent porphyria present with seizures(118); convulsions occur in 39% of cases with congenital toxoplasmosis (119); hyperinsulism though often thought of in the differential diagnosis of seizures, is actually the cause in less than 0.1%(120); 12% of cases of Coxsackie B in newborns have seizures(121); and 70% of cases of idiopathic hypoparathyroidism and 65% of cases of pseudohypoparathyroidism have convulsions(122). Among the rare causes of seizures are instances of hyperserotonemia (123), a "cerebral salt-wasting" syndrome believed due to sustained inappropriate release of antidiuretic hormone(124), pyridoxine-dependency(125) and a retained intracranial sewing needle that had been used in an attempted infanticide(126). Epilepsy associated with menstruation, pregnancy, puerperium or the menopause is discussed(127, 128, 129, 130); estrogens may increase irritable foci(131). A B-6 deficiency may be the etiology of "rumfits" (132); 45% of epileptics are reported to have a B-6 deficiency(133).

The value and dangers of pneumoencephalography in epileptics are discussed (134, 135, 136, 137). Epileptics have normal cerebrospinal fluid transaminase(138), cholesterol and cholesterol esters(139), and total calcium, chloride, potassium, sodium, magnesium, and inorganic phosphorus (140). Decrease serum mucoproteins may be found in patients with progressive familial myoclonic epilepsy(141). Many epi-

leptics have hyperactive thermal vestibular responses(142).

TREATMENT

New anticonvulsant drugs are: indolylethylpyridines which may act like serotonin (143); ethchlorvynol, a tertiary alcohol (144); Phenaglycodal, a substituted ethylene glycol(145); Elipten, a glutaride(146, 147); quinacrine and chloroquine(148, 149); PM 671(150) and PM 680(151), new succinamides; Ethoxzolamide, a carbonic anhydrase inhibitor(152); and Nydrane, a benzylamide(153). Results with Celontin(154), Trinuride(155), Hibicon (156), meprobamate(157, 158), ketogenic diet(159, 160), Diamox(161, 162), Dexadrine(163, 164), intravenous Xylocaine (165, 166), intravenous Dilantin(167), tubocurarine (for status)(168), and thymus extracts(169), are reviewed. The use of ipronazid is suggested(170, 171) which is interesting in light of convulsions being one of its known side effects. ACTH is of value in the treatment of "Gibbs' hypsarrhythmia" (172, 173, 174).

Toxic effects of Dilantin are reported as not being seen when the blood levels are less than 30 micrograms/ml.(175). Megaloblastic anemias due to some anticonvulsants are associated with normal serum B-12 levels(176) and normal absorption of folic acid(177); Dilantin may produce meningismus and a cerebrospinal fluid pleocytosis(178) or a parenchymatous cerebellar degeneration(179); Mesantoin may produce a clinical picture resembling infectious mononucleosis but without a raised heterophile titer(180); anticonvulsant drugs may mimic malignant lymphomas clinically and pathologically(181); Paradione(182) or Tridione(183) may cause a nephrosis; Mesantoin was considered responsible for the aplastic anemia in 3 out of 89 cases(184, 185); experimentally, meprobamate may produce seizures after withdrawal(186); cessation of prolonged induced sleep for the treatment of mental disorder has been followed by withdrawal convulsions(187). Among unexpected side effects of some anticonvulsants are: decreased typhoid agglutination titers after the administration of some barbiturates (188), an antithyroid activity of thiohydantoins(189), and a lowered oxygen consumption after administration of Diamox which is taken as evidence of antithyroid activity(190). Small doses of various phenothiazines given for a short period of time can produce "seizures"(191, 192, 193, 194) although these actually may be acute dystonias rather than epileptic seizures. In regard to the treatment of the various toxic conditions, antihistamines are reported again to be without value in Dilantin-induced gingival hyperplasia(195), intravenous Tridione relieves seizures associated with severe Dilantin intoxication(196), and hemodialysis has been used successfully in the treatment of extreme Dilantin poisoning(197),

The results of hemispherectomy(198, 199) and electropallidoanostomy(200) are reported. A number of papers discuss the surgical treatment of temporal lobe epilepsy(54, 58, 59, 201, 202). There is frequently an improvement of the personality along with improvement of the seizures, particularly in patients with aggressive tendencies.

PSYCHOLOGY AND SOCIOLOGY

The nature of epileptic interference with psychic function has been studied experimentally(203, 204). Certain psychological characteristics of epileptics are examined (205, 206, 207, 208, 209, 210). There may be greater disturbance in vocabulary than with abstract ability regardless of which temporal lobe is involved in psychomotor epilepsy(211). No changes in general intelligence or learning after temporal lobectomy on the nondominant side has been found in contrast to a decrease in auditory verbal learning ability if the dominant lobe was involved(212). Some psychological factors involved in bizarre seizures (213), the occurrence of autoscopic phenomena in some epileptic attacks(214), the value of recall during sodium amytal interview as a diagnostic aid in seizures (215) and the value of group meetings of families of epileptics(216) is considered.

The English laws regarding epilepsy and annulment of marriage(217) and some medico-legal aspects of epilepsy in the U. S. (218) are discussed. Of Norway's 20,000 epileptics, 50% are working(219). In the

Mayo Clinic's series of epileptics, 19% have made "superior" adjustments, 68% are self-supporting, 9% are partially dependent, and 4% are totally dependent; adjustment is not altered by type, frequency or duration of seizures(220). Exception has been taken to the admission of two more persons into the club of famous epileptics, Emperor Caligula(221) and St. Paul(222).

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PSYCHIATRIC SOCIAL WORK

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Psychiatric Social Work continues to extend significantly, its services in the field of mental health, and to clarify and define areas of practice through experience and study. These areas range from the conceptualized roles in working with mentally disturbed patients in individual treatment, to leadership as consultants and directors in the development of broad mental health programs for prevention and treatment. Throughout, the patient is envisioned as a family member in a social community. Thus, in keeping with the interest of this profession in treatment of psychiatric maladjustment as well as in the prevention of illness, the roles now extend from that of casework therapist to community organizer for mental health.

Two areas within which psychiatric social work is progressing rapidly, are group therapy and social research. After years of training with psychiatrists in group dynamics, beginning as members of a group, then as observers, co-leaders, and leaders with psychiatric consultation, workers have gained confidence in dealing with complex multiple transference and countertransference elements. They now are able to facilitate group movement for more adequate social readjustment. The limited number of psychiatric social workers in relation to the current demand within the rapidly mushrooming mental health programs is giving impetus to the use of group process. The skilful application of the techniques of group dynamics enables each worker to make better use of himself as a catalyst, not only in work with patients toward health, but also in such roles as consultant or mental health organizer, in motivating groups to work together for community programs(1).

The responsibility of a professional group to test the effectiveness of the underlying principles and techniques of its accepted practice, is now being assumed more actively. Supplementary advanced training in

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research methods is available through in-service training, post graduate third year and doctoral levels. Social workers are participating in the varied research projects of many psychiatric clinics and hospitals in collaboration with psychiatrists, psychologists and members of other disciplines. Follow up studies evaluate the social readjustment of specialized patient groups selected frequently either by diagnostic or treatment categories. Research concerning the professional practice of psychiatric social work, itself, also is being conducted. The many intangibles and variables present in multiple human reactions create obvious difficulties for objective study which, we hope, will be surmountable. Through structured research design, the purpose is the isolation and testing of certain basic concepts underlying interpersonal therapeutic casework relationships to enhance and improve practice.

Because of the continuously increasing demand for professionally trained psychiatric social workers in comparison with the existing supply, present practice and training are being thoroughly examined in all dimensions. The curriculum of both undergraduate and graduate programs is being reviewed. What social work content can be taught in undergraduate colleges? Can areas of practice be specifically defined for different levels of training for social work aides, technicians, and social workers? How would social work content introduced to the undergraduate affect academic training of the graduate student?

Concurrent with this examination has been the analysis of the content taught for the Master's degree in social work for the "specializations" such as psychiatric and medical. As a result, the content formerly taught primarily to psychiatric social workers will be taught for the most part, in the general curriculum in the 49 approved schools.

Schools wishing to give more intensive preparation for this field of practice will place special emphasis on the modification of social casework or social group work in the psychiatric setting; the working relationship with other members of the psychiatric team; the import of the psychiatric diagnosis of the patient and his family; and a detailed knowledge of the community's provisions for the care and treatment of the mentally ill(2).

It was estimated in 1946, when the National Mental Health Act was passed, that there would be a need for approximately 15,000 psychiatric social workers to provide necessary services in clinics and hospitals. Consistent with the effort to meet the existing unfilled positions throughout the United States, especially for state mental Hospitals, vigorous recruitment efforts are currently under way. Undergraduate students, usually majoring in sociology or psychology are supervised as case aids to interest them in entering the field. Career programs with paid summer field work have been initiated. Lectures, discussion groups and literature are some of the methods utilized in this intensive effort to recruit. It was estimated by the Council of Social Work Education that the number of students enrolled in the psychiatric programs of the schools of social work for the academic year 1958-1959 was 1,062, more than a two-thirds increase from the 305 enrolled in 1947. The Federal Scholarships Program has been a large factor in stimulating interest and enabling qualified people to enter the profession.

The following two manuscripts are suggested as important presentations of the progress of psychiatric social work: 1. The comprehensive study prepared for publication in the Social Work Yearbook, on Psychiatric Social Work, by Daniel E. O'Keefe, covers the growth, development and the current trends of this "specialization," including professional education, the professional association—the National Association of Social Workers, and the stimulus of the Mental Health Grants Program of the National Institute of Mental Health.

2. An Institute in teaching methods for faculty members of all schools having psychiatric social service programs was held in 1957, with Charlotte Towle, Leader. The Proceedings of this Institute, entitled "The Case Method in Teaching Social Work," was published in 1959. It deals with basic assumptions of professional education and the use of the case material for classroom and field work instruction(3).

Further experience and study will pro-

duce additional crystalization of practice. As increased identity as a profession is achieved, proportionate gains in the value of the unique contributions of psychiatric social workers will be noted in the field of mental health.

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MENTAL HEALTH IN EDUCATION

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Educators belong in the mental health group, says the World Health Organization in a recent report:

> Children are entrusted to their care for ten to twelve years—the most essential, perhaps, of their lives. Psychological insight is necessary to deal with the different personalities to be found in a classroom, and the various difficulties they experience in learning and in behaving in a social group(1).

And Dana L. Farnsworth says:

> If teachers and administrative officers convey attitudes of friendliness, warmth, and insistence on basic integrity and high intellectual standards to their students the quality of each individual's experience in college is quite different from that of the student who feels that his instructors are aloof, impatient of him, and interested only in their subject and private affairs(2).

Moreover, as Dr. R. H. Felix, Director of the National Institute of Mental Health, United States Public Health Service, points out, "the growing interest of educators in the mental health aspects of their work has led to a marked increase in research and program development in this field"(3). The studies that have been made, he says, suggest also that perhaps we need to broaden our outlook to include, along with other factors, study of the school as a social system which affects the mental health of children. "This means," Dr. Felix adds, "that we must investigate the effects on children of such aspects of the overall school program as its organization and administration, the relationships among the school staff (including non-teaching staff), varying perceptions of staff roles, and methods of staff communication."

Dr. Felix stresses the necessity for emphasis on "positive mental health, on the preservation and promotion of the health of all the children in the school." He notes that since the end of World War II school systems have become one of the largest employers of mental health personnel; also that at the same time the mental health professions have been intensifying their interest in schools as a vital place to study the development of children and new ways of reaching them before they develop serious problems. "What happens to a child in school helps to determine how he will be able to meet the stresses and demands of life."

To what extent are mental hygiene services provided for children in public and private schools? Dr. David Abrahamsen, consultant for the New York State Department of Mental Hygiene, who has studied both types of schools since 1955, concludes in his 1959 report that "relatively speaking, private schools show a greater number of emotionally disturbed children than do public schools"(4). He points out, however, that the private schools have better access to psychiatric help, primarily because their children are of a higher economic status. While the public schools have only one psychiatrist for every 50,000 children, one psychologist for every 11,000, and one psychiatric social worker for every

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38,500, the private schools have one psychiatrist for every 2500 children, one psychologist for every 950, and one psychiatric social worker for every 11,000. "With respect to mental hygiene facilities," he says, "public elementary and secondary schools do not compare favorably with private schools, though the latter, too, fall short of their needs." And he adds: "A child learns when he is emotionally happy; it is this happiness that every educator, whether he is in a private of a public school, has to further."

Considerable attention has been given recently to emotional pressures on teachers. While workers in business and industry have secured a 40-hour week, Louis Kaplan points out in his recent book, and are contemplating even a further reduction in working hours, teachers spend from 45 to 52 hours per week on their jobs or in job-related activities. Moreover, this author adds, "not only do teachers work longer hours than most wage-earners, they are under constant emotional pressure. Classes are large, and there is hardly a moment of the day when the teacher is free from children"(5).

Special attention has been given recently to mental health as part of the preparation of other professional workers besides those in education. Mental health in professional education is one of the projects specifically designated for World Mental Health Year, 1960, and a preliminary report on the subject was presented to the World Federation for Mental Health at the meeting held in Barcelona, Spain, in the summer of 1959. This report indicated a growing concern for mental hygiene as part of the preparation of professional workers in all fields—medicine, dentistry, public health, nursing, social work, law, ministry, business, and other fields, as well as education. At the Harvard University Medical School students have a one-year course in "Growth and Development," covering both somatic and psychological aspects. Mental health is also represented in a Harvard program for the education of "community health specialists." Another area where there have been significant developments in mental health education is that of the church and religion. Colgate-Rochester Divinity School, for example, has an arrangement whereby the school shares the expense of a hospital chaplain trained in mental hygiene who gives a course in clinical training during the academic year and a summer course at the hospital. An example of mental hygiene in legal education is that of the University of Oklahoma, where the instructor in criminal law makes regular use of the Central State Hospital in instructing law school students. The report at Barcelona characterized mental hygiene instruction as essential in professional education today, concluding that "unless the professional schools recognize this and incorporate mental health into their programs they cannot prepare adequately for professions in the modern world."

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PSYCHIATRIC NURSING

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Considerable progress continues in psychiatric nursing with emphasis on the application of clinical skills in psychiatric nursing practice, the study of psychiatric nursing content in the basic nursing curriculum, the improvement of nursing services and in the educational preparation of psychiatric aides.

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The Council on Psychiatric and Mental Health Nursing program meeting at the National League for Nursing Biennial Convention in May 1959 was devoted to a presentation of three papers concerned with nurse-patient interaction in clinical psychiatric nursing(1). In a second session at the convention the council members discussed the preparation of psychiatric aides(2). Panel participants included psychiatric nurses and a psychiatric aide.

A review of the Council *Newsletter* items on the activities of state and local councils indicate a wide range of interests and activities for council members. Topics included for discussion and workshop sessions were remotivation, followup care of discharged patients, education of psychiatric aides, community mental health resources, integration of mental health concepts in the basic nursing curriculum, special clinical problems in psychiatric nursing, improved communication between nursing service and nursing education, the care of the psychiatric patient in the general hospital and a wide range of other topics(3). A report "Suggested Core Curriculum for Pre-Service Education of Practical Nurses and Psychiatric Attendent Nurses" has been issued by the Inter-Council Committee of the Councils on Psychiatric and Mental Health Nursing and Practical Nursing of the Michigan League for Nursing.

The first afternoon session devoted exclusively to the presentation of papers on clinical psychiatric nursing at the annual American Psychiatric Association meeting in April 1959 was enthusiastically received by all present(4).

Nursing educators continue to focus on the identification and integration of mental health and psychiatric nursing concepts in the basic nursing curriculum. A project, financed by the National Institute of Mental Health and sponsored by the National League for Nursing, involving a series of five regional conferences and a national working conference concerned with the content and process of integration was concluded during the year. The reports of the regional conferences in this project have been published in "Concepts of the Behavioral Sciences in Basic Nursing Education" (5). The final report of the working conference will be available early next year.

The program of nursing service consultation of the National League for Nursing through the Department of Hospital Nursing continues to implement an active program of consultation for the purpose of improving patient care through the improvement of nursing services. Initial visits were made to state and voluntary psychiatric hospitals in Pennsylvania; followup visits to hospitals in the Rocky Mountain area. Two-day institutes for all nursing personnel devoted to the subject of "Feelings and Attitudes in Psychiatric Patient Care" were held in conjunction with the followup visits.

Considerable attention has been directed toward the role of the public health nurse in the followup care of the mentally ill. Areas of special interest are the mental health training programs for public health nurses(6) and the activities of the public health nurse in direct care of patients. The use of a part-time psychiatric consultant and a full-time mental health nursing consultant in a visiting nurse service has proven very helpful to the nurses in working with emotionally ill patients in their caseload(7). Such opportunity has also given them increased appreciation of the mental health role of the nurse with all patients. A monograph "Released Mental Patients on Tranquilizing Drugs and the Public Health Nurse" presents an intensive study in the followup care of discharged patients (8).

The educational preparation, functions and evaluation of the psychiatric aide continues to be a focal area of interest for psychiatric nurses. *The Correspondent*, a newsletter published by the National League for Nursing on a subscription basis for psychiatric aides, attendants technicians and practical nurses, has entered its second year(9).

An interesting study on the evaluation of the psychiatric aide indicates the need for careful use of rating tools. The authors suggest that "the use of an objective standardized instrument for obtaining the observation of nurse supervisors is felt to be superior to the usual impressionistic methods in evaluating aide performance"(10, 11).

The result of intensive investigation by a

working committee of the National League for Nursing and extensive review by nurses and their co-workers throughout the country culminated in the publication "Suggestions for Experimentation in the Education of Psychiatric Aides"(12). This material should prove useful to nurses interested in experimenting with preservice programs for aides as well as for on-the-job training and inservice programs.

The Seminar Project for Teachers of Psychiatric Aides supported by the National Institute of Mental Health and sponsored jointly by the American Psychiatric Association and the National League for Nursing, has completed seminars in North and South Carolina. Thus far 114 nurses from these states have been enrolled in the seminars designed to improve the inservice education for aides. During the coming year seminars will be conducted in Arkansas and Tennessee and a final evaluation of the project will be completed in September 1960.

At the APA Mental Hospitals Institute in October 1958, the Training of Ward Personnel(13) was discussed. Considerable interest was indicated in the role expectations various co-workers have for aides. Several illustrations of aide training programs in state and other psychiatric hospitals were described.

Psychiatric nurses are vitally concerned with the application of clinical skills in psychiatric nursing practice. Emphasis has been placed on the roles of mothering, listening and playing in the nursing care of a child hospitalized in a psychosomatic unit of a hospital(14). The nurse's skill and ability in working with patients expressing characteristics of hopelessness and aggressive behavior will have great meaning for hospitalized patients(15, 16). Patients with special nursing problems such as the geriatric patient offer great challenge to all personnel in psychiatric nursing(17).

In a discussion of the psychiatric nurse's relationship with the patient, Farrar states "a prime requisite as being tolerant adaptability to all sorts and conditions. Tolerant adaptability with the purpose of engaging patient's trust and cooperation, of relieving symptoms and even, if possible, modifying unwholesome attitudes"(18). The importance of all psychiatric team members working toward the common goal of improved patient care is stressed in a discussion of the working partnership of the psychiatrist and the nurse(19).

Changing patterns and philosophy of psychiatric care have fostered the need for new roles for nursing personnel(20). Nurses are becoming effectively involved as leaders in group psychotherapy in selected settings(21).

Continuing interest has been focussed on the role and function of the clinical specialist in psychiatric nursing(22). The interaction between patients and nursing personnel with emphasis on a method for study of the process has been an additional area of concern(23).

Psychiatric nurses have indicated through their group activities, publications and research studies the need to further clarify and define the role of the nurse in psychiatric settings and the role of the nurse in the care of the discharged psychiatric patient. Much has been accomplished, but there are many areas in need of continuing investigation and study.

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FAMILY CARE AND OUTPATIENT PSYCHIATRY

WALTER E. BARTON, M.D.[1]

FAMILY CARE

Family Care continues to show a steady growth (Table 1) in the United States.

TABLE I

PATIENTS IN FAMILY CARE IN THE UNITED STATES AS OF JUNE 30, 1959

	All Patients	*Mentally Ill Only*
New York	2,747	1,834
California	1,416	939
Michigan	1,155	810
Pennsylvania	1,031	
Illinois	1,044	809
Ohio	965	490
Veterans Administration	910*	910
New Jersey	490	462
Maryland	489	392
Rhode Island	262	
Massachusetts	221	184
Connecticut	55x	
Virginia	13	8
Florida	12	12
Idaho	6	4
	10,816	6,854
1958	9,313	
1951	4,937	

* As of December 31, 1958
x As of June 30, 1958

Two new states appear on the list for the first time, (N. J. and Idaho.) New Jersey has one of the larger programs and has been making placements for 8 years. As in most states, more rapid program development could occur if trained social workers and financial support for expansion were available. Idaho is sponsoring a demonstration of the use of family care in an area with limited mental health resources. Selection and placement of patients is from those believed most likely to become self supporting.

Ullmann(1) studied 191 family care placements and found that 2/3 of the patients so treated continued to live outside of the hospital well over a year after placement. The number of years spent in the hospital, the type of ward and the number of previous admissions were factors significantly related to outcome.

Sixteen family care workers(2) were able to predict the probable outcome of 64 family care placements from abstracts prepared by social workers. Another study (3) compared a family care group of 45 patients with 57 patients released to the community through trial visit procedure.

Even though the family care group seemed to have a lower potential for living outside the hospital, they remained out of the hospital in the same proportion as did those released on trial visit status. The

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attributes of a good family care home were investigated(6). The most significant finding was the favorable influence of a male in the home. Not only is the good caretaker a good mother but it is a better home for patients when there is a "good father," or "benevolent parental figures."

Cummings(4) says the placement of patients on trial visit in foster homes is an intermediary or last step for patients who are considered able to live outside the hospital but are not adequate or ready for complete independence.

Kirkpatrick(7) indicates with the present focus on an "open door policy," family care is another valuable step in giving patients an opportunity to find greater self direction.

North Carolina(8) has moved 900 former mental patients from institutions to join 5,000 elderly who live in 352 private boarding homes. The Austin (Texas) State Hospital(9), also attempted to reduce overcrowding among its patients 60 years and older by placing 806 patients in nursing homes, supervised by a hospital clinic team that spends a half day a week in the field.

OUTPATIENT PSYCHIATRY

The year's most exciting development in outpatient psychiatry has been the report of the Worthing Experiment from England (1, 2, 3). Admissions to mental hospitals increased markedly and serious overcrowding resulted in England as it has in the United States. The Graylingwell Hospital in Chichester developed its Experiment in Worthing, a city of 160,000 people located 22 miles distant from the hospital. The Worthing psychiatric service consists of an outpatient department in the general hospital and three units in another building located in a residential area. These units are a day hospital, and outpatient treatment service, and a home visiting service. Over 1/3 of all initial contacts with patients were made in the home. At the end of 2 years, 71% of the Graylingwell Hospital's admission district was included in the experimental population.

Admissions from the Worthing area dropped by 61.7% and the drop from the total admission district was 43.5%. Admissions among the elderly fell by 51% and there was a reduction of patients in hospital residence of about 10%.

The senior psychiatric staff of the Mapperly Mental Hospital (Nottingham, England) spend over half their time in outpatient work(4). The integration of these clinics with the local health authority was achieved by pooling staff personnel. A feature of this outstanding and comprehensive community mental health service is a joint pre-admission visit paid to the home of a patient by the psychiatrist and a social worker. Such visits are made routinely in all patients appealing for help who are 65 years of age.

Mandelbrote(5) emphasizes the need for "education of the community toward recognition and tolerance of mental illness, and the early referral of psychiatric problems through the proper training of general practitioners and health visitors." Of 288 patients visited in their homes, 50% required hospital admission.

Boaro(6) describes the division of the city of Amsterdam (900,000 pop.) into 6 regions serviced by 12 psychiatrists and 25 nurse-social workers to give community psychiatric service 24 hours a day. Two hundred and fifty inquiries are answered daily and care is provided for 3,000 patients living in the community. Helsinki(7) also provides home visiting services after O. P. D. treatment. Regional health units with outpatient clinics, day and night hospital, family care and sheltered workshops, have been established in Nigeria and in South Africa(8).

A psychiatric emergency service(9) operating 24 hours a day with no waiting for help, gave service to 1,816 new patients in 6 months in the Bronx, N. Y. Only 10% were sent to longterm psychotherapy. Immediate consultation was available for social agencies.

Simultaneous treatment(10), of 20 schizophrenic patients and the members of their families as outpatients proved successful in 80% of the cases. When family members did not appear, the patient's condition deteriorated and often necessitated hospitalization.

Psychiatric outpatient clinics are not possible in thinly populated areas. As a

consequence of distance, the further a patient lives from a treatment facility, the more disturbed he has to be before he gets help. Smith and Witson(11) attempted to meet this problem by training general practitioners to use their offices as outpatient clinics. Fourteen days of planned instruction in a year made this possible.

Brief psychotherapy may be the treatment of choice in an outpatient clinic, rather than an expedient, when criteria for selection of cases are carefully applied, according to Visher(12).

A study of the fate of psychiatric clinic patients(13) points up the failure of many patients to accept psychotherapy when it is made available and the relatively poor results of psychotherapy in patients who do accept it. The Phipps Clinic saw 3,413 new outpatients and referred 17% to individual psychotherapy and 10% to group psychotherapy. Thirty-five percent failed to accept it when available. Three of every 4 patients who began psychotherapy stopped coming without discussing this step. Maximum benefit was obtained by only 9% of those referred for psychotherapy.

The planned flow of patients with psychiatric illness through community resources is advocated by Greving(14) to reduce the need for mental hospital care and to conserve scarce professional service. Outpatient clinics should, in this view, accept only the more seriously ill who are harmful to self, family or community. Expanded counselling service may then handle minor problems that form a large proportion of clinic admissions.

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FORENSIC PSYCHIATRY

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Once again, the periodical literature on forensic psychiatry seems to lay emphasis on the criminal aspects of the law. Watson (1) gives an extended study of the aftermath of the Durham case and some of the subsequent decisions of the District of Columbia Court of Appeals amplifying and clarifying the "product" test of criminal responsibility. He concludes that psychiatrists have failed to use the new rule for its intended purpose, namely to explain the way in which mental illness caused the defendant to commit the act alleged. An unsigned note in the Colorado Law Review(2) considers the Durham Rule a decided improvement, and comments that it proves that the prevailing "tests" can be modified and broadened "without disastrous consequences." Lord Keith(3) makes some observations on the Scottish doctrine of diminished responsibility, recently adopted in the English Homicide Act. He states that under this doctrine the status of the psychopath is not clear, and he speaks of Denmark, Sweden, and Netherlands as having a more scientific approach to that problem. An article by Manson(4) takes up the recently enunciated military principle of lack of mental capacity to intend as distinguished from mental irresponsibility as defined in the Manual of Courts Martial. Apparently, he says, the courts are interested in the evidence, not in the nomenclature of mental disorder, and he warns against codifying medical beliefs into law.

Gibbens, Pond, and Stafford-Clark(5) report a followup (1948-1957) of 72 criminal psychopaths, comparing them with 59 controls. Only 18 of 105 subsequent convictions were for aggressive crimes. They give as their opinion that the diagnosis does not portend so hopeless a prognosis as is generally implied. Kozol(6) discusses the psychopath before the law. The new Massachusetts commitment law recognizes character disorder as a ground for commitment to a mental hospital. Mental illness should not be considered as synonymous only with psychosis, Kozol says. Harder(7) reviews 860 defendants examined at the Rheinau hospital in Switzerland ; 43% were diagnosed as psychopathic personality with or without mental defect, whereas only 6.4% were considered schizophrenic ! Of the group 20% were considered responsible, 8% not responsible, and 71% of diminished responsibility. Tuchler(8) discusses psychiatry and criminalistics. He emphasizes the need of each discipline to translate scientific data into everyday language.

In the field of testimony, Davidson(9) deals with testimonial capacity. There is no single test for measuring it, he says ; the psychiatrist's clinical judgment is still the best instrument. Orenstein(10), in a symposium on forensic medicine, discusses the credibility of the witness. He points out that although the psychiatrist can be helpful in establishing credibility, his services are limited on account of legal procedure. Freedman(11) deals with pharmacodynamics and psychiatric investigation. He remarks that "truth serums" stimulate the unrepressed expression not only of fact but of fancy and suggestion as well, so that they are actually not "truth serums" at all. Guttmacher(12) discusses psychiatric court

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clinics, advocating more accent on therapy rather than limiting their function to diagnosis and disposition. Everett and Suitt(13) treat the evolution of bench consultation. The expert, they say, must have some knowledge of the germane legal issues, and of the relevance of the psychiatric evidence to the legal problems involved. Kreutzer (14) makes a thorough analysis of the Briggs Law of Massachusetts. He concludes that it is a fundamental part of the administration of criminal justice in that State. Donnelly, Edgren, Satter and Ryan(15) present the results of a joint social-psychiatric-legal counselling service set up in Hartford on an experimental basis two years ago. Stern (16) presents a scholarly essay on the problem of privilege. He expresses the hope that eventually privilege may rest on a sound principle as a sole criterion, namely possible harm to the patient.

Usdin(17) discusses testamentary capacity, reviewing the psychiatric problems involved. He notes that as yet there is no place for legal recognition of the impact of the unconscious on human behavior in this field.

Ross(18) presents another in his series of studies on the commitment of the mentally ill, this time on problems of law and policy. Most of the statutes are not in general policy agreement, and apparently some basic questions have not even been considered. His article includes a state-by-state synopsis of laws on such topics as notice hearing, jury trial, and justification for commitment. Davidson(19), in a chapter of the American Handbook of Psychiatry, deals with the commitment procedures and their legal implications. Another lengthy article, this time by student editors (Brucken, Genger, Rice, Shaevsky, Slye and Volpe)(20) deals with mental illness and contracts. The authors conclude that the tests for inability to contract have been basically the same for centuries, uninfluenced by advances in psychiatry.

In a more general field, Overholser(21) deals with major principles of forensic psychiatry.

In a symposium on criminal justice, Roche (22) discusses criminal responsibility and mental disease. He advocates the Durham rule as providing the largest range to the psychiatrist in being of use to the court. An unsigned note in the Yale Law Journal(23) considers the release of defendants who have been committed to a mental hospital following acquittal by reason of insanity. The note recommends a board of psychiatrists, lawyers and members of the community at large to pass on such releases. Goodman(24) discusses legal inertia as exemplified in the "almost contemptuous disregard" with which several courts have cast aside suggestions that the Durham rule should be adopted. Diamond(25) in a thoughtful editorial deals with the "fallacy" of the impartial expert.

Most of the state legislatures met this year. In the spate of legislation, very few laws relative to mental health seem to have been passed. Iowa(26) modernized the terminology of mental health, substituting, for example, "mentally ill" for "insane." New York(27) authorized its directors of State hospitals to establish sheltered workshops on the grounds of the hospitals. Several more States have adopted the interstate compact, among them Missouri, North Carolina, South Carolina and Vermont.

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ADMINISTRATIVE PSYCHIATRY

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Psychiatrists, physicians, and the general public continue to press for greater diversification of psychiatric facilities to provide a type of longitudinal patient care having a flexibility and selectivity little known a few years ago. The existence of large state hospitals isolated from the rest of the medical and social community can only be viewed as a poor answer to any psychiatric problem other than for domiciliary care of persons rejected by society and medicine. Indeed they are obsolescent(16). The development of comprehensive psychiatric community services may be based on the mental hospital and involve the setting up of outpatient clinics, day and night centers. Mandelbrote has pointed out the importance of educating the community towards recognition and tolerance of mental illness and of training the family doctors and public health officers in order to facilitate early referral and continuity of treatment(32).

The psychiatric hospital of the future is pictured as the headquarters and training and research center for the local mental health organization with only a small residential unit for special treatment. As many patients as possible would be treated in outpatient clinics or wards of a general hospital. The mentally disordered criminal should be treated in a separate unit(38). The younger long-term care patients, of whom the great bulk will be schizophrenic, will live in groups and to a large extent look after themselves(9). In New York State, certain statistical trends which show a marked increase in geriatric psychiatry, a marked increase in child psychiatry, plus a change in the composition of the population in the institutions as turnover of patients increases, produce a net tendency to an increase of dependency and handicap in the residual hospital population; Brill and Patton conclude this will mean fewer working patients and the need of more skilled and more efficient paid employees (5).

The Health Minister of Ontario would segregate "hopelessly ill" mental patients and develop diagnostic and treatment centers in larger cities with sufficient staff to carry on outpatient, day care, night care, and short term inpatient treatment; his mental hospitals would be units of 250 to 300 beds with a staff particularly oriented to research in schizophrenia(13). The South African National Council for Mental Health has developed a provisional plan for comprehensive community care(33). Programs have been described as they have developed in New York State(14), Minnesota(22), Eastern Kentucky(21), and Philadelphia(28). For those considering establishing a mental health unit, Hamovitch details the history of the formation of one noting certain principles in its establishment(18).

The usefulness of having psychiatrists on call twenty-four hours a day is a well known advantage of Querido's integrated Amsterdam plan(2). The Psychiatric Home Treatment Service of the Boston University School of Medicine provides emergency

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treatment for those who refuse or are unable to get to a hospital or clinic(35). By having a psychiatrist immediately available to see any emergency for brief therapy, less than 10% of the patients need referral for prolonged treatment, and chronic patients could be carried with less expenditure of time(7).

In recent years there has been a tremendous growth in the use of the day hospital; some of the types of setting, facilities, staffing, types of patient, and programs were summarized from the proceedings of the First National Day Hospital Conference(16). Ewen Cameron described briefly how the program at Allen Memorial Hospital has been changed(6). Harrington and Mayer-Gross detail their several years experience at Uffculme Day Hospital and recomend a maximum of 16 patients with no more than a few of them schizophrenics in order to maintain a cohesive therapeutic group(20). A review of the literature, as well as general English attitudes about day hospitals, is presented by Craft(8). They have been found useful in the treatment of severely disturbed schizophrenic children, and greater development of them might decrease the inappropriate placement of a large number of mentally ill children in residential centers(15).

Bennett has reviewed the problems in establishing and maintaing psychiatric units in general hospitals with facts and figures for several(3). Details about the setting up of a small psychiatric inpatient service in a small rural general hospital were given by Adams, who commented on the advantages and disadvantages of such a program(1). The opening of a general hospital's closed ward did not require additional personnel nor modification of treatment and admission policies(24).

A brief overall impression of Soviet psychiatry is given by Lebensohn(27), while another author who visited a 2,220 bed mental hospital in Moscow expressed surprise to find "such fine hospital care" with an employee to patient ratio of one to one and a staff of 167 physicians of whom 105 were psychiatrists(26). British psychiatry was reviewed by several (23, 37): Beresford of the York Retreat adds comments about the contrasting administrative problems of private and public hospitals, particularly in regard to an open door policy (4); Paterson stated, " . . . . the improvements in therapy have been brought to the ordinary citizen to a far greater extent than would have been possible if it had not been for the National Health Service," and, "It is certainly true that any fears which might have been entertained that socialized medicine might stifle initiative among practitioners working at the periphery have not been realized"(34).

The costs of mental illness, both direct and indirect, with many valuable tables and figures were the subject of two monographs: in the one, *Economics of Mental Illness*, Fein is generally conservative in his estimates(12); in the other, state mental health programs and tax problems faced by legislatures are discussed by Spector (36).

Statistics concerning the number, distribution, and activities of psychiatrists show that although the number of psychiatrists has increased in three years 21.2%, they are still grossly unevenly distributed. Over half have psychiatric hospital affiliation and two-thirds are in private practice(11).

Malzberg reported his study of first admissions in New York State for psychoneuroses(30), discussed the difference in rates for all first admissions of Negroes(29), and summarized many of his important statistical studies(31). In Norway the incidence of mental disease was found to be higher among refugees than among matched settled average population(10). Results supporting the finding that schizophrenic admissions are higher from low socio-economic areas and manic-depressive from high were reported, but the investigators expressed doubts that such results establish the social variables as contributory(19). A Canadian study concluded that differences in admission rates between provinces are less indicative of the incidence of mental disorders than of such factors as social judgment regarding what constitutes mental abnormality, social demand for hospital care, availability of care, and variations in diagnostic criteria(17).

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MILITARY PSYCHIATRY

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Since the exploration of outer space is a military activity, the psychological aspects of space travel on personnel have become the subject matter of study by military psychiatrists.

Ruff and Levy(1) described experiments to study the stresses which might be expected to occur in space flight. They state that the current knowledge of stress in space flight is based largely on inference from the study of analogous experiences. From the study of these data, they believe that it can be predicted that space flight will impose no psychological stress which carefully selected, trained crews cannot withstand. In the laboratory two types of experiment have been employed: one, a study of prolonged confinement during which an interesting effect—that of regressive behavior—was observed; the second group of experiments was devised to determine what kinds of stimuli, supplies, and structuring were necessary for effective functioning. Their findings indicate that at least 7 groups of variables must be considered in planning isolation experiment

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research. These variables are as follows: 1. The complex of circumstances under which isolation occurs; 2. The subject's personality, background, motivation and set; 3. "Aloneness"—this included both geographic and cultural components; 4. Degree of communication allowed between subject and experimenter; 5. Confinement; 6. Perceptual space; 7. Modality, quantity, and pattern of sensory input.

These authors conclude that experimental isolation is stressful by destructuring the environment. It becomes intolerable if lack of meaningful inputs disrupts perception of continuity and sameness. Structure is maintained primarily through the sense of ego identity, and secondarily by preserving orientation.

Kinsey(2) reported on the psychologic aspects of the Transpolar Cruise of the *Nautilus*. It was noted that favorable environmental factors, not only those vital to safety but also those unnecessary but desirable facilities that make life on a submarine more pleasant, enhanced the maintenance of high morale and motivation. He observed a need for meaningful goals both major and local or personal and the benefits derived from their accomplishment. It was noted that group interaction in many respects paralleled an interrelationship observed in many families. The obvious interest of higher echelons in the men's welfare accounted for a major increment of morale. An important implication was that cool, level-headed leadership of an emotionally mature commanding officer must be available to maintain a neutral and supportive balance.

Cooke(3) considers the stockade an integral part of the military structure and its purpose as only incidentally custodial. He is of the opinion that its goal is not only punishment of misconduct but an indication of the attitude of the military society toward the act, not the person. It serves as a deterrent to future violations by the individual and the rest of the military population. It is intended to make the individual a better soldier. As the result of a study of prisoners leaving the stockade, he determined the feasibility of establishing a screening program by which non-effective prisoners could be identified. The rehabilitation program consisted of a series of steps, as follows:

Intake interview, initial classification; Adjustment interview; Confinement officer interview; Parole period; Interview prior to release; Interview with commanding officer.

With well trained, intelligent, well-motivated social work specialists and close professional supervision, the program proved successful with only minimal demand on the time of the psychiatric staff of the full time activity. The program provided an aid to rehabilitation which was voluntary and based on increasing responsibility, military training, and increased personal benefits. The soldier was provided with a choice because his offense was more often based on immaturity than on antisocial or criminal behavior. This program led to a successful reintegration of the soldier into his duty role as a responsible, effective soldier.

The author observed a similar plan in operation. The interview with the commanding officer was especially helpful to the morale of the prisoners. A sharp decline in recidivism was one of the results.

Pierce(4) epitomizes common psychiatric problems in recruits in a brig. He recommends the use of group testing of prisoners, and finding methods to reduce delay in the trial. He recommends correlation of brig research data by all of the Armed Forces and suggests that this would result in economic and moral benefits to the Armed Forces.

Wood(5) considers the issue of returning psychiatric patients to duty. In his opinion this matter brings into sharp focus numerous important problems for the military psychiatrist. For example: his own feelings of security, his adjustment to military life, his ability to evaluate a new kind of patient in a highly specific life situation, his concepts of good treatment, and his ability to prognosticate. He finds that when psychiatrists enter military service, they all share an abrupt total unawareness of the special requirements for the role of the military psychiatrist. By the time that they feel comfortable with their duties, they are on their way to civilian life again. In his article, Wood deals with specific problems of returning a patient to active duty. Generally

the most important element that determines a patient's willingness to return to duty is his relationship with his psychiatrist. Authority conflict manifests itself in a variety of reactions and can be dealt with to advantage in short-term psychotherapy. He stresses the importance of concentrated learning efforts on the part of the prisoner.

Adler(6) reviews the literature on enuresis and reports a double blind study with Equanil. He found that enuresis is influenced by almost as many factors as there are investigating specialists in the field. He lists the following groups of causes :

1. Psychologic—resulting from internal conflict ;
2. Psychologic—resulting from a failure in training ;
3. Organic—due to disturbance in the genito-urinary system ;
4. Organic—due to disturbances in the nervous system.

He studied 102 male recruits, ranging from 17 to 20 years of age. They were divided into three groups. One group consisting of 50 individuals was used to test factors of motivation, personality and treatment on disposition. A second group of 52 individuals was used to test the effectiveness of treatment alone on disposition. The third group consisted of 36 individuals on whom was tested the effectiveness of continuity on disposition. The subjects were exposed to a double-blind study involving Equanil and a placebo with supportive and suggestive psychotherapy. The remission rate for each group was 43%. Equanil selectively benefited aggressive enuretics. Motivation for service does not significantly affect the results of treatment. With passive enuretics there was no difference in response to Equanil or the placebo. Of the transient enuretics, 85% recovered with psychotherapy.

Flinn, *et al.*(7) describe 22 cases of what they term Travel Syndrome. These were acute transitory psychoses occurring in military personnel during travel. Typically the onset occurred after several days of travel. The patients consumed more alcohol than usual, were fatigued, practised irregular eating habits, and were under emotional stress. The most prominent symptoms were apprehension, hallucinations, ideas of reference and paranoid delusions. The symptoms subsided quickly following hospitalization. In four of the patients there was no alcoholic indulgence but the psychological stress of the travel precipitated latent psychotic reactions where there was pre-existing emotional disorder.

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PSYCHIATRIC EDUCATION

FRANKLIN G. EBAUGH, M.D.,[1] AND ROBERT H. BARNES, M.D.[2]

Regretfully we start this review by noting our great personal sorrow at the death of Dr. Seymour Vestermark, who as Chief of the Training and Standards Branch of the National Institute of Mental Health had done so much to fashion the course of psychiatric education, both resident and undergraduate.

Again one of the basic concerns in psychiatric education review is the per-

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sonnel shortages so constantly with us. The Joint Commission on Mental Illness and Health has just published their third book which covers this general area. Dr. Albee (1) carefully documents the tremendous shortage of professional people and suggests a rather hopeless picture unless some very major scientific breakthroughs occur or basic changes in social attitudes result in more people going into the sciences, including the behavioral. It is necessary that we as educators create an image of the professional man that will attract the high school graduate into scientific work. Between 1956 and 1959 we did improve the ratio of psychiatrists to the general population from one per 19,200 to one per 16,400(2). However, as Albee(1) notes, the rate of increase in psychiatrists is not going to be sufficient to keep up with our population increases so that this ratio may not be maintained. A further fact of significance is the concentration of psychiatrists in large cities, with 54% of all psychiatrists residing in the 15 largest metropolitan areas, representing only 31% of the total United States population(2).

Another discouraging trend appears to be the decreasing number of medical school applicants in the face of increasing college enrollments and increasing numbers of graduates from colleges(3). Also, there is some evidence suggesting that medical schools are not attracting the same quality of students that they formerly did. In the year 1950-51, 40% of entering medical school students came to medical school with an "A" average. In 1958 this had dropped to only 18% coming with "A" averages. In light of this general picture the Dean of the School of Medicine of the University of Pennsylvania(4) believes it is unlikely that the psychiatric specialty as now constituted can meet the ever-increasing needs. He brings up the possibility of training a large number of "general practitioners of psychiatry" who would be trained through a different medical school curriculum than our current physicians. He feels we are going to have to supply more practitioners of psychiatry within the medical field or face the clinical psychologist, social workers and other non-medical groups taking over more and more of the treatment of the mentally ill.

It is interesting that psychiatrists as a group are quite active in teaching and a recent report indicates that one-third of all psychiatrists hold academic appointments (2). Jurgen Ruesch, however, points out the extent to which our teaching activities have to compete for our time with TV, radio, telephones, as well as invitations for social affairs, scientific gatherings, committee meetings, *etc.* Rare is the psychiatrist who has an adequate time to teach in face of these demands, added to clinical work and research interests(5).

A Philadelphia group(6) has made a comprehensive survey of 30 psychiatric departments in medical schools in an attempt to discover what might be considered a standard, appropriate and realistic structure for a department of psychiatry in a medical school. It is an excellent study and should be read by all in the field. It makes clear the tremendous range in the quality and type of departments that exist in our medical schools, varying from departments with 17 full time teachers and research grants within the millions to departments with no full time staff or beds and no research funds. The group notes the extent to which department and administrative function may swamp the psychiatric leadership and creativity of the faculty and the impossible expectations that are made on the average department chairman.

UNDERGRADUATE PSYCHIATRIC TEACHING

How to integrate teaching of human behavior into the medical school curriculum in an understandable and effective manner has been considered by a number of authors. Two psychiatrists in New Orleans (7) believe that teaching human behavior as a basic science in medical schools is best approached by illustrative clinical material well integrated with basic psychological, cultural and neurophysiological data. In an attempt to arrive at a better understanding and teaching of human behavior in health and disease, the new medical school at the University of Kentucky has organized a Department of Behavioral Science(8). Here a health team concept will be developed with the student

learning early the role relationships between different professional groups interested in behavior. Staffing pattern in the unit includes sociologists, cultural anthropologists, experimental and social psychologists. This general approach in medical education is being carried out extensively elsewhere as is summarized in an article from the University of Natal in South Africa where much emphasis is put on a knowledge of sociology, anthropology and psychology in the training of medical students(9). In the Department of Psychiatry at Baylor University College of Medicine a sociologist is used extensively to help the students to understand behavior in terms of "What people do" rather than "What they should do"(10). Cooper(11) has been concerned that psychiatry and psychology are not designed to provide values and goals which can be communicated to medical students and in turn be helpful to them in treating patients, particularly in dealing with some of the deep-seated characterological problems seen so often. He raises the question as to whether the sociologist should take a major role in medical education from the standpoint of helping the medical student to develop clearer concepts of values and goals.

One recent study underlined the importance of the resident in the teaching of medical students(12). The value of joint teaching of medical students by an internist and a psychiatrist over a period of years was published in a study from the University of Pittsburg(13). The two teachers attempted to develop an integrated teaching experience and to give neither a purely psychiatric nor medical image to the patient. Less frequently, then, did the question appear, "Is this psychic or organic?"

One author at the annual APA meeting this year noted the low status which the lecture occupies as a teaching method in psychiatry(14). He outlined several suggestions to increase the effectiveness of the lecture, suggesting such things as copious use of passages from the autobiographic writings of people who have undergone mental illness, and verbatim transcriptions of recorded interviews with patients to illustrate basic material in a lecture. An interesting attempt to make psychiatry more comprehensible to the sophomore medical student through a course in psychophysiology was presented by an author from Colorado(15). Actual laboratory work in psychophysiology is undertaken on a limited scale.

Coleman(16) outlines an approach to the teaching of psychotherapy to medical students which he has found helpful in allowing the student to disencumber himself of some of his preconceptions, premeditations and distortions of attitude and behavior, as well as his discomfort in a close, intimate relationship with a patient. At the University of Oklahoma(17) a longitudinal curriculum allows for training in psychotherapy to take place over a considerable period of time. The value of the longitudinal curriculum in this type of training over the usual "block" system in teaching psychotherapy is emphasized.

It is interesting that very few American medical schools offer any teaching of sexual and marital problems to medical students and very little appears in the psychiatric literature through the years on this subject. Recently in Britain a half day symposium on this subject was held which underlined the lack of such training and the need to have it set up as part of the curriculum(18).

GRADUATE TRAINING

A review(19) of the latest available figures on graduate psychiatric training in the United States indicates that there are currently 288 residency training programs with a total of 2,770 appointees. Seventy-eight percent of available residencies in psychiatry are filled. These figures indicate approximately 260 more residents in training in psychiatry this year than at a comparable time last year. It is interesting that there are almost twice as many residents in training in surgery (5,373) or internal medicine (4,842) as in psychiatry. There is a very interesting general review article on the development of internships and residencies(20) which indicates that between 1940 and 1958 the number of medical students increased only from 21,271 to 29,473, but during this same period the number of residencies available increased almost seven-fold or from 4,882 to 30,595. The extent to which internship and residency pro-

grams are located outside direct university zones of influence is noted and the author ends up with the final comment, "It would appear that the outstanding medical task for the remainder of the Twentieth Century will be to foster centers of medical excellence in strategically located hospitals in *all* American communities"(20).

The American Board of Psychiatry and Neurlogy and the story of its founding is presented in a lively review(21). We are fortunate to have available the results of a 10-year effort to delineate the factors important in the selection of psychiatric residents, based on the studies at the Menninger School of Psychiatry(22). This book should be in the hands of all psychiatric educators and carefully perused by selection committees. Chapter XVII—"Recommendations"—should be of major importance to other program directors. A much briefer study is made by Eisendorfer (23) of the factors which make for a good psychoanalytic candidate based on the work of the Committee for Admissions in New York Psychoanalytic Institute.

Morse(24) believes that there is a serious and little recognized deficit in post-war residency training which consists of minimal interaction between younger psychiatrists and the rest of the medical profession. As he points out, the young psychiatrist goes to few medical meetings, mixes professionally only with other psychiatrists and does not communicate adequately with the referring physician. He feels that it should be the duty of training programs to underline the importance of proper communication and interaction with non-psychiatric medical colleagues. A Cornell group(25) underlines the difficulty in interesting residents in the total hospital environment as a therapeutic tool and in teaching them the importance of what goes on outside the therapeutic hour. At the Payne-Whitney Clinic residents in the third year are designated as floor doctors and are put in charge of the management of a unit.

Those doing supervision work in psychotherapy will be pleased to have Ekstein and Wallerstein's new book from the Menninger Foundation titled, *The Teaching and Learning of Psychotherapy*(26). It is a comprehensive review of the process of supervision. Two teachers from the University of Utah(27) note the importance of giving the beginning psychotherapist a feeling of personal security which can often be accomplished by assigning the resident a patient to whom he can relate easily. Oftentimes this must be a patient from his own socio-economic group. The authors underline the value of exposing the trainee to several theoretical approaches to provide perspective. A new book by Glad(28) also expounds the value of several theoretical approaches. His book is aimed toward further developing a science of psychotherapy. This book should provide the supervisor and the teacher many new ideas to broaden the interests, views and skills of the beginning psychotherapist.

A sizable number of residents continue to come from foreign lands, although interestingly the proportion in psychiatry is less than the over-all average. In psychiatry 19% of our residents in training are graduates of foreign schools, whereas over-all 23% of resident trainees in America are graduates of foreign schools(19). Smiley(29) gives a review of the results of the first year of operation of the Educational Council for Foreign Medical Graduates. In the February 1959 examination in the United States 48% obtained passing scores and 27% obtained borderline scores leading to temporary certification. For those training directors interested in medical education around the world, may we recommend the special international issue of the *Journal of Medical Education*(30).

A very interesting report of 5 years' experience at Harvard University School of Public Health on the education of mental health specialists appeared(31). This is a post-graduate course of one to three years' duration for psychiatrists, Ph.D.-level psychologists, and senior psychiatric social workers. The course is designed to help the clinician shift from his emphasis on the individual to comprehending community health factors. What is outlined is training in a significant new sub-specialty of psychiatry where there is no generally accepted systematic body of knowledge.

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REHABILITATION AND OCCUPATIONAL THERAPY

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A year ago in this review the contributions of British investigators to psychiatric rehabilitation were emphasized and the prediction was made that the changing pattern of psychiatric thought and practice in the United Kingdom would influence psychiatric methods elsewhere(1). Events of the past year sustain this prediction and indicate that American psychiatry is following the British orientation toward the open hospital and the expansion of community psychiatric services. The Milbank Memorial Fund has contributed generously to this movement by supporting visits to selected British hospitals by state hospital authorities of New York, New Jersey and Connecticut(2) and by making possible a study of the open mental hospital by Hunt (3). From his survey Hunt concludes that "the great fundamental value of the open-door movement lies in its demonstration that the mentally ill not *ought* to be, but *can* be, destigmatized."

In this country change toward an open-door policy is progressing slowly(4, 5, 6, 7), while the development of community psychiatric services is progressing rapidly. Goshen(8) stresses the value of the day hospital and recommends that each state accept the concept of the day hospital as

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an experimental substitute for new or expanded hospital buildings. Seale and Watkins(9) describe a day hospital especially designed to keep the patient in contact with the community. Fisher(10) criticizes such programs because of their lack of research orientation. Miller(11) emphasizes that the problems inevitably created by community participation in rehabilitation can be minimized if leadership is assumed by trained personnel. Leyberg(12) points out the advantages of psychiatric services in general hospitals but insists that a good relationship with a mental hospital is essential. Whitten(13) says that discharged patients must have rehabilitative services outside of the hospital if readmission is to be avoided and Muth(14) concludes from a survey of such services that there is great variation in the aid rendered. Ullman and Berkman(15) report that family care programs can markedly reduce the probability of readmission of discharged psychiatric patients. Klapper(16, 17) shows how local mental health associations can cooperate with various community agencies helping the patient and says that 38 of 86 leading rehabilitation centers include ex-mental patients in their programs. Irvine, Tracy and Fine(18) describe a statewide plan that supplements psychiatric hospital treatment with vocational rehabilitation which helps move the patient into the community and into employment. Many other programs that facilitate return of patients to productive extramural jobs are in progress(19, 20, 21, 22, 23, 24, 25, 26, 27). Likewise, movements are afoot to bring competitive industry into the hospital. Clark(28, 29, 30, 31) tells of a program of activity and freedom which includes contract electrical work brought into the hospital and Wadsworth, Scott and Tonge(32) and Clark(29) report on a successful hospital workshop that has developed into a complete intramural factory. Minde(33) gives an account of a similar experiment conducted in conjunction with a rubber company. Benney(34) stresses the therapeutic importance of work, while Bolin and Scott (35) say that work not only is of therapeutic value but also is one of the favorite activities of patients.

In the face of widespread enthusiasm for the open-door policy, the expansion of community psychiatric services and the acceleration of the rate of discharge of mental hospital patients, voices of caution are heard. Sands(36) believes some patients are being returned to their homes completely unsuited to deal with their problems. Similarly, Slear(37) observes that tranquilizing drugs make it possible for many psychiatric patients to return to the community while they are still socially disabled individuals. And Kubie(38) challenges "the partial cure" and expresses concern over the problems thus created for the patient, the family and the community.

Psychiatric first aid, a method of rapid rehabilitation that has been employed successfully in the Netherlands for thirty years (39), is beginning to take root in the United States. Coleman and Zwerling(40) describe such a service being used advantageously in New York. Another rehabilitative facility used extensively in Europe, the Homemaker Service, which supplies mother substitutes for homes in which mothers are hospitalized for mental illness(41), is now being more widely employed in America(42).

Adjunctive therapies are playing an increasingly important role in rehabilitation. Key(43) thinks that training programs for coordinators of such therapies are needed. Sherwin(44) and Rosé, Brown and Metcalfe (45) discuss the use of music in rehabilitating psychiatric patients, while a group of specialists(46) considers how music can assist in the care of exceptional, emotionally disturbed, and brain-damaged children. Certain experts on recreation(47, 48) report on various phases of recreational and housebound patients and offer advice on recreation counseling for the mentally ill. Silson, Cohen and Hill(49) state that there is a need for well organized recreation programs under trained hospital staffs. Ackerman, Mitsos, and Seymour and Smith(50) describe camping programs and the latter author expresses the opinion that such activities help prepare hospitalized patients for their return to the community.

Psychiatric patients of a particular age or with particular types of problems receive special consideration from numerous investigators. In London, funds have been allocated for two hostels where children leav-

ing schools for the educationally subnormal will be helped to find their places in the community(51). Tizard(52) visited the U. S. S. R. and studied mental health work, especially with children. His informative report stresses the generous staffing of all institutions and the excellence of psychological research in the Soviet Union. In New York, an important meeting was held to discuss problems of residents in homes for the aged(53). The principal theme under discussion was how to deal with mentally disturbed patients. Hobby therapy is considered important in such homes(54). Morrow and Rosenbaum(55) discuss the importance of psychiatry in the rehabilitation of the aged and conclude that a team of professional workers can best plan an effective mode of treatment. Ohio has developed 25 nursing homes to care for the mildly mentally ill(56). Although these homes have no arbitrary age limits for patients, the bulk of their work is with aged persons who would be burdens to their families, yet do not need the services of a mental hospital. Rainer and Kallman(57) report on a mental health project for the deaf and stress how psychiatric patients who have hearing defects have been neglected in the past. Rood(58) describes a method of rehabilitating sexual psychopaths by means of a hospital therapeutic community with an accent on group therapy and states that only 11% of 1,000 such patients have been recidivists.

The recent periodicals contain many publications dealing with relieving the emotional factors that obstruct the rehabilitation of the physically ill. Because of limitation of space, only a few of these papers can be considered. Zane(59) points out that physical rehabilitation is frequently adversely affected by personality traits developed as defenses against anxiety. Maritz (60) says that physical disability has a subjective meaning determined by the previously existing personality and both he and Cath(61) emphasize the role of the body image in the production of psychologic problems. Vernon(62) believes that successful rehabilitation of cardiac patients relies on relieving anxiety by demanding the patient's dependency and later by supporting a realistic program of restoration. Rogers(63) suggests somewhat similar principles of rehabilitation for all chronically ill patients. Marmor(64) states that the process of rehabilitation consists of physical restoration, rehabilitation education and psychological rehabilitation and that psychological rehabilitation is the most important element.

Several books dealing with rehabilitation have been published during the past year. The most comprehensive one is that edited by Rusk(65). He and his 37 collaborators have created a text which will serve as a reference for every member of the rehabilitation team. The chapter dealing with the rehabilitation of psychiatric patients is particularly well done. Simon(66) gives an excellent description of modern concepts of rehabilitation which center around the treatment of the whole person in all aspects of his life. Meyer and Borgotta(67) offer a critical evaluation of certain techniques used in rehabilitating discharged patients. Caudill(68) presents observations that seem to make it possible to predict the likelihood of group disturbances of various kinds. McLean and Taylor(69) discuss the maladjustments of the industrial worker, industrial practices and mental health aids in industry. The American Psychiatric Association has published an excellent book (70) that fully discusses the place of volunteers in programs of treatment and rehabilitation and the American Medical Association's Committee on Rehabilitation has approved a booklet that outlines ways to strengthen rehabilitation facilities at the grass roots level(71).

It is important to note that the United Kingdom has promptly implemented the significant Report of the Royal Commission on the Law Pertaining to Mental Illness and Mental Deficiency(72). Last July Parliament approved a bill(73) which embodies many of the changes recommended in the Report and which, when it soon becomes operative, will enable mentally ill persons to enter a hospital without signing a voluntary form and without power of detention by the hospital(74). Obviously, this far-sighted policy not only will bring about vast changes in the practice of psychiatry, but also will for the first time give the mentally ill the same legal status

as the physically ill. Carstairs and Wing (75) believe that the British public is ready for the changes recommended.

Occupational therapy has made progress in 1959. Leaders in the profession are focusing their attention on educational procedures(76) and curricula(77) in order to meet the demands of changing medical concepts. The American Occupational Therapy Association Study Plan, in preparation since 1951, approved in 1957 and supported by a substantial grant(78), is now under way. Many new ideas about training should come from this investigation. Other changes in the approach to the education of occupational therapists are also evident. The Committee on Graduate Study of the A.O.T.A. has prepared a plan for the development of graduate education leading to higher degrees in occupational therapy(79). According to Thompson(80), only four colleges in this country presently offer master's degrees in occupational therapy. Jantzen(81) urges graduate programs in occupational therapy that lead to specialization in psychiatry. Reilly(82) stresses the need for revision of the occupational therapy curriculum at a level of scientific knowledge upon which practice can rest. Azima and Azima(83) and Dunning(84) offer theories of psychiatric occupational therapy based on psychodynamic premises while Doniger(85) expresses the opinion that occupational therapy has attempted at times to go further than the present state of understanding in psychiatry warrants.

Robbins(86) and Dodson(87) believe that the occupational therapist has special tasks. Robbins points out that inasmuch as the occupational therapist is involved in changing the purposes of the person with whom he wishes to communicate, it is essential that he cultivate effective techniques of communication. Dodson believes that the occupational therapist must help society to understand and accept the rehabilitated person. Rood(88) notes that for the occupational therapist to develop successfully, stimulation must occur both from within and without.

The A.O.T.A. has taken steps to reduce the discrepancy between occupational therapists needed and occupational therapists available by presenting a plan for the training and recognition of occupational therapy assistants(89). Such a program has been activated in Ontario(90).

Ellis and Bachrach(91) insist that occupational therapy cannot function as an independent unit in a hospital. They hold that its value is in direct proportion to the comprehension of and coordination with the psychiatric staff. Smith, Barrow and Whitney(92) find that attitudes toward occupational therapy differ among different types of psychiatric patients. Tibbs(93) discusses the creative impulse and its value in therapy and Brown(94) describes "psycho-iconography," a method "of communicating through drawings and pictures." With this technique the patient is encouraged to draw any picture he wishes and the therapist interprets symbols presented and thus becomes aware of the patient's inner life. Welsh(95) discusses the significant role which occupational therapy can play in the rehabilitation of alcoholics.

Two books dealing with occupational therapy published within the year have come to this reviewer's attention. *Changing Concepts and Practices in Psychiatric Occupational Therapy*(96) is an excellent presentation of current thinking as to how occupational therapy can best meet the needs of the hospitalized patient in terms of modern dynamic concepts. Rusk's *Rehabilitation Medicine*, referred to previously(65), has a chapter on the principles of occupational therapy.

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COMMENT

GENERAL MEDICINE BEFORE SPECIALIZATION

The age of specialization has created many problems. The most disturbing of these seems to be the apparent isolation of the specialist from man as a whole being, which narrows his perspective and limits his usefulness. The specialist in his zeal to know all about his specific field is in danger of concentrating on only a small part of man, thus dividing the whole into many small parts, each an island to itself. I believe that much of this tendency could be corrected without in any way interfering with the tremendous gains in medicine brought about by specialization.

My premise is simply that we permit specialization much too soon, long before mature judgment and clinical experience have become a part in that decision.

As psychiatrists, we stress the importance of our being acutely aware of the total person. Yet paradoxically we prejudice such a possibility from the onset by our approach to the training program. We do not give the young doctor an opportunity to learn first-hand the practical knowledge of his fellow man. From the very start of his academic career he lives a sheltered and isolated existence. His life is made up of school and hospital work; college, medical school, internship and then three to five years of intensive study confined to the area inside the cranium. And then when he finally starts to practise he usually limits himself to a further subspecialty!

I believe there should be a break in this academic routine of, say, two or three years, during which the young doctor will be actively engaged in the field of general practice. No man can be a good specialist unless first he be a good doctor and is well grounded in all of man's basic problems. As I see it, knowing how man lives is the most basic of all the requisites to the proper understanding of man. And nowhere can one learn this as effectively and wholesomely as in the field of general practice. Years of hospital and university training can never prove an adequate substitute. Only through the broadening influence of coming in constant contact with man, his family, his social, physical and emotional states, his ticking as a whole man in his home and environment and not as an isolated part of himself, can a proper understanding be reached.

In addition, from the experience gained from a period of general practice will come the insight to guide the young doctor to the specialty wherein he will be best suited and happiest. His choice will come not from some preconceived idea or from what residency happens to be available, but from having practised all of the specialties daily he will have learned in which special field he is most talented.

And finally the barrier between the specialist and the general practitioner will be removed, for now the specialist is no foreigner speaking a foreign language but one who, having shared a common practical experience, can communicate with his fellow practitioners in understandable medical terms.

Nathan K. Rickles, M.D.
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CORRESPONDENCE

THE PRESENCE OF ADRENOCHROME IN BLOOD

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY :

SIR : Recently Szara, Axelrod and Perlin (3) reported in this JOURNAL that they had developed a sensitive and specific method for estimating adrenochrome in plasma. Using this method, they found less than 20 μg./liter of some nonspecific fluorescent substance. They therefore concluded that adrenochrome is not present in plasma. On the other hand, using an altogether different method (2) based upon the method of Fischer, Derouaux, Lambot and Lecomte (1), we have found that adrenochrome or something very much like it is present. The concentration is increased after giving volunteers d-LSD-25 (not after Brom LSD or LSM) and after the injection of solutions of crystalline adrenochrome intravenously.

We have now examined the method described by Szara, *et al.* (3) and believe we have an explanation for these discrepancies.

We have compared both methods. In order to avoid the issue now whether adrenochrome is naturally present in plasma, we injected 10 mg. of authentic adrenochrome in saline intravenously into a schizophrenic patient. Ten minutes later, 20 mls. of blood was removed from the arm and placed in a flask containing heparin. This blood, known to contain adrenochrome, was centrifuged and the plasma divided into two portions. One portion was analyzed by our method and the other by the Szara method. The fluorescence readings are shown in the following table.

FLUORESCENCE READINGS (SAME SCALE) OF ADRENOLUTIN FROM PLASMA CONTAINING INJECTED ADRENOCHROME

	Our Method	Szara Method
Plasma and 1 μg. adrenochrome	0.56	0.045
Plasma alone	0.31	0.0115
Blank	0.21	0.0090
Increase of plasma over blank	0.10	0.0025
Increase due to 1 μg.	0.25	0.0335
Apparent adrenochrome conc.	400 μg./liter	76 μg./liter

With our method, the fluorescence increase with 1 μg. authentic adrenochrome was 0.25 units compared to an increase of 0.0335 units by the Szara method using the same scale on the Farrand Spectrofluorometer, *i.e.* the latter method yielded about ⅛ the fluorescence. With our method, the plasma reading was 0.31 or 0.10 units above the plasma blank. With the Szara method, it increased 0.025. Our blank is high in this instance due to the high conversion of adrenochrome to adrenolutin in plasma. The blank or plasma when adrenochrome has not been injected is low.

The fluorescence readings by the Szara method are so low that it does not find adrenochrome. Thus blood known to contain added adrenochrome had 400 μg./liter by our method and only 76 μg./liter by the Szara method. This latter value is in doubt because the plasma reading was so close in fluorescence to the blank. If we assume the same ratio of sensitivity between the two methods then obviously plasma which would contain 50 μg. by our method would have been less than 20 μg. by the other method.

If therefore the Szara method is sensitive, ours is about 8 times more sensitive. If their method is specific, so is ours, since in both methods the specificity depends upon the conversion of adrenochrome into adrenolutin in the presence of ascorbic acid.

The Szara, Axelrod, Perlin method is therefore not sufficiently sensitive to help us decide whether or not adrenochrome is really present naturally in plasma.

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REPLY TO THE FOREGOING

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: In view of the implications of the claim that adrenochrome is present in the blood(1) we felt it necessary to try to confirm it. As customary, we published the results along with the method used(2). The discrepancy between our and Dr. Hoffer's results most probably stems from the difference in the methods used. However, we cannot directly compare our method with Dr. Hoffer's since the latter has not been published. The original article of Fischer, *et al.*(3) and even Dr. Hoffer's most recent article about "The Adrenochrome Model and Schizophrenia"(4) in which he presents again figures on the level of adrenochrome in the blood, give no sufficient details of the method. Therefore in making comparisons we must use the data reported. Two aspects of the analytical methods should be discussed here: the sensitivity and the specificity.

It is a well-known fact in analytical chemistry that the sensitivity of a method depends upon the magnitude of the blank. As the blank increases, the sensitivity decreases. Although Dr. Hoffer's reading reported here for 1 μg. adrenochrome is about 8 times greater than ours (0.25 *vs.* 0.0335) his blank value is more than 23 times higher (0.21 *vs.* 0.0090). Consequently, when measuring small amounts of adrenochrome, the precision of the method is greatly reduced. For example, it is claimed that in plasma of normal subjects 50 μg./liter adrenochrome is present(1): when LSD is given, the value rises to 164 μg./liter (1). The blank value reported in Dr. Hoffer's paper is 0.21. The reading which adrenochrome in plasma would give using his method after the blank value 0.21 was subtracted would be 0.01 in normal subjects and 0.04 in subjects receiving LSD. This represents an increase over the blank reading from 5 to 20%. Considering the variations in the blank and the instrument fluctuations, it is virtually impossible to reach any conclusions concerning the plasma levels of adrenochrome from those readings. Furthermore, the nature of the blank which contains adrenochrome converted to adrenolutin is very ambiguous. Perhaps the availability of a published procedure would clarify this important question.

It might be pointed out that sensitivity of a method also depends on the instrument employed. The instrument we used was an Aminco Bowman Spectrophotofluorometer which proved to be sufficiently sensitive to measure as little as 0.02 μg./ml. adrenochrome. The accompanying table gives the values we obtained in our laboratory.

GALVANOMETER READINGS ON THE AMINCO BOWMAN SPECTROPHOTOFLUOROMETER USING OUR METHOD

	Scale Deflections *
0.2 μg. Adrenochrome added and recovered from water	62±2
0.2 μg. Adrenochrome added and recovered from plasma	63±3
Plasma No. 1 extracted by our method	12±1
Plasma No. 2 extracted by our method	10±2
Reagent Blank	4±1

* Mean and deviation of duplicate determinations not corrected for reagent blank.

It can be seen from these data that our method is extremely sensitive and can measure as little as 0.02 μg./ml. (20 μg./liter), which would give a reading more than twice as much as the blank.

Actually our readings with plasmas Nos. 1 and 2 were in this order of magnitude, but this does not prove the presence of adrenochrome in the plasma, since this fluorescence—as we pointed out in our original note—did not possess the characteristic activation and the fluorescence spectra. Further data show that only the added adrenochrome could be recovered from plasma, and no additional significant elevation of the specific fluorescence was observed.

The specificity of our method is based on the fact that adrenochrome is extracted into organic solvent only in a pH range between 4 and 5; this insures the elimination of interfering materials, which is reflected in the very low blank values. The adrenochrome is converted to adrenolutin

after it has been isolated. Dr. Hoffer has not published any data on the specificity of his method or on the identity of adrenochrome found in biological material.

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DR. KARPMAN'S BOOK: THE HANGOVER

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: In the course of many years of publishing, I have ere long resolved never to argue with a book reviewer. They are a peculiar lot, have a peculiar psychology all their own, and to argue with them is like trying to break through a Chinese wall. But one has to correct an error which is so glaring and obvious. In the review of my book, *The Hangover,* by Dr. Stephen Fleck in the August number of the Journal, the statement is made that the hangover is not otherwise defined, suggesting that there is no definition given. This is absolutely untrue. On page 521 of the book I give more than a half page definition of the hangover, clearly titled "definition," which is the result of the many definitions which grew out of the material of my patients. Additionally, I also have explained the meaning of the concept on pages viii to xi which the reviewer has apparently overlooked. How does it happen that a book that gives almost a page of definition has escaped the notice of the book reviewer? The explanation is found in the fact that by some oversight, the word definition did not appear in the index. The reviewer is apparently the type of man who does not read carefully the book from cover to cover as one should, but depends upon the index and the table of contents. If the index does not contain the word definition, then in his opinion a definition is never given, which is incorrect at least in this instance.

In another place, the reviewer further states that there is no description of the method whatsoever. I would assume that the reviewer is a psychiatrist who knows how to interview people. This work was done by a combination of interviewing and writing. My approach was that of a clinical researcher, the purpose of the book, as the title suggests, being to examine the meaning of the hangover as a psychological phenomenon. The hangover was made the variable while all the rest was left constant. Therefore, my main concern was that of eliciting the hangover and not to be concerned with secondary considerations of family relationships, and so on. This should belong to and is planned for another study.

It would be tempting to go through the whole review and point out the inaccuracies, but I am chary of the space that an editor can afford to give to the correction of an error.

Benjamin Karpman, M.D.,
Washington, D. C.

REPLY TO THE FOREGOING

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: Thank you very much for the opportunity to respond to Dr. Benjamin Karpman's letter criticizing my review of his book *The Hangover,* but I believe the value of the book and the pertinence or impertinence of the review can be left to the judgment of the readers. May there be a lot of the latter whose lot is not that of the reviewer.

Stephen Fleck, M.D.,
New Haven, Conn.

NEWS AND NOTES

American Board for Psychological Services, Inc.—The Board has released its 1960 *Directory of American Psychological Services* which is a voluntary listing of agencies and individuals providing competent psychological services. These services are listed alphabetically by state or province and city, with all necessary data. There is also a geographical listing of the diplomats of A.B.E.P.P. Most of the states and 3 Canadian provinces are included. Copies may be obtained from the American Board for Psychological Services, Inc., Glendale, Ohio, for $1.50.

Dr. Bowman Again in the Far East.—Dr. and Mrs. Karl M. Bowman sailed on November 5 to the Far East where he will again be Visiting Professor of Psychiatry at the Siriraja Medical College in Bankok. He will be occupied in this work until about the first of April.

World Federation for Mental Health.—At the recent meeting of the World Federation for Mental Health, William T. Beaty, II, Assistant Executive Director of the New York State Association for Mental Health of the State Charities Aid Association, was elected President of the United States Committee of the World Federation.

Re-elected were Honorary Presidents Mrs. Clifford W. Beers, Dr. Earl D. Bond, Mrs. Henry Ittleson and Dr. Arthur H. Ruggles. Other officers elected were Mrs. Jonathan Bingham, Chairman of the Governing Board and Mrs. George A. Stern, Chairman of the Executive Committee; Dr. Robert L. Sutherland, Treasurer and Dr. George S. Stevenson, Assistant Treasurer. Newly-elected to the Governing Board were Dr. Margaret Mead, Dr. Bertram H. Schaffner and Lewis Cullman.

Dr. Ruggles Honored.—At the first meeting of the Rhode Island Branch of the American Psychiatric Association, October 26, 1959, Dr. Arthur H. Ruggles, past president of the American Psychiatric Association and former superintendent of Butler Hospital and Emma Pendleton Hospital was the guest of honor. A library in the new wing of the Fuller Memorial Sanitarium, South Attleboro, Mass., was dedicated to Dr. Ruggles. He presented a portrait of himself which will hang in the new library.

Dr. Lawrence Senseman, medical director of the Sanitarium, read the tribute to Dr. Ruggles: "An outstanding figure in American psychiatry, he has been a true friend to all of us in our psychiatric youth and maturity. He has always been the friendly advisor, liberal in his encouragement, ready to give wise counsel when needed."

Officers of the society for the forthcoming year were elected as follows: Dr. David Fish, president; Dr. Barry Mongello, vice-president; Dr. Joseph Zucker, secretary-treasurer; and Dr. Sidney Goldstein and Dr. Laurence A. Senseman, counsellors.

The American Board of Psychiatry and Neurology, Inc.—The following candidates were certified by this Board after examination in Chicago, Ill., October 19 and 20, 1959.

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Vosburg, Robert Louis, Western Psychiatric Inst. and Clinic, 3811 O'Hara, Pittsburgh 13, Pa.
Walters, Orville S., 405 West Delaware, Urbana, Ill.
Welch, Victor Clifford, VA Hosp., Perry Point, Md.
Wellhouse, James Lansing, U. S. Public Health Service Hosp., Wyman Park Drive at 31st St., Baltimore 11, Md.
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Wilson, Frederic William, Traverse City State Hosp., Traverse City, Mich.
Wright, Harold L., Jr., 19850 Westhill, Northville, Mich.

NEUROLOGY

Bonsett, Charles Allen, 902 Hume Mansur Bldg., Indianapolis 26, Ind.
Gerschwind, Norman, Neurology Service, Boston VA Hosp., 150 South Huntington Ave., Boston, Mass.
Joynt, Robert James, University Hospitals, Department of Neurology, Iowa City, Iowa.
Koenig, Harold, VA Research Hosp., 333 East Huron St., Chicago 11, Ill.
Loeser, Eugene W., Jr., Division of Neurology, University of North Carolina School of Medicine, Chapel Hill, N. C.
Lombroso, Cesare T., 28 Allerton St., Brookline 46, Mass.
Nelson, Dewey A., Professional Bldg., Wilmington 3, Dela.
Rosenbaum, Herbert E., 7393 Westmoreland Dr., University City 30, Mo.
Sanchez Longo, Luis P., Calle Wilson No. 1475, Santurce, Puerto Rico.
Ch'eng, Leslie Yu-lin, Northern State Hosp., P. O. Box 309, Sedro-Wooley, Wash.

PSYCHIATRY AND NEUROLOGY

Dutch, Stephen J., Jr., 602 South 44th Ave., Omaha 5, Neb.

Dr. Foret Heads De Paul Hospital.—Dr. Justillien H. Foret has been appointed medical director of De Paul Hospital in New Orleans to succeed Dr. Walter J. Otis who died in June 1959.

Dr. Foret, a graduate of Louisiana State University Medical School, had his psychiatric training at Worcester (Mass.) State Hospital, served five years as clinical director at Blythewood Sanitarium, Greenwich, Conn. and since 1952 as clinical director at De Paul Hospital.

Col. Glass Receives the Gorgas Award.—Col. Albert J. Glass, chief psychiatry and neurology consultant to the Army's surgeon general's office, has received the Gorgas Medal for his pioneer role in preventive psychiatry.

The Gorgas award, consisting of a silver medallion, a citation, and a check for $500, was presented during the annual dinner of the Association of Military Surgeons in the Mayflower Hotel, Washington, D.C., November 12, 1959.

Dr. Glass, a veteran Army psychiatrist, is the 17th recipient of the Medal, presented annually for distinguished service in military medicine. The award is made by Wyeth Laboratories in memory of Surgeon General William C. Gorgas, whose work in controlling yellow fever made possible the construction of the Panama Canal.

In presenting the Medal, Dr. Robert S. Warner, a member of the Wyeth medical staff, stated that Dr. Glass' studies during World War II and the Korean Conflict resulted in a substantial reduction in combat time lost by victims of psychiatric disorders. In the peacetime Army, his work has been credited with an all-time low in the number of men hospitalized with such disorders and the number of offenders imprisoned.

During World War II, Col. Glass was an Army division psychiatrist and in the Korean Conflict was chief neuropsychiatric consultant to the Far East Command.

During his 18 years with the Army, Dr. Glass has been associated in executive capacities with the neuropsychiatric programs of a number of Army hospitals, serving most recently as chief of the neuropsychiatry department of Walter Reed Army Hospital.

His decorations include the Legion of Merit and the Bronze Star.

ASSOCIATION FOR THE ADVANCEMENT OF PSYCHOANALYSIS, INC.—The Association announces the eighth annual Karen Horney Lecture to be given by Dr. David McK. Rioch, director of neuropsychiatry at Walter Reed Army Institute of Research. The title is "Recent Contributions of Neuropsychiatric Research to the Theory and Practice of Psychotherapy." The meeting will be held on March 23, 1960 at 8:30 p.m. at Hosack Hall, at the New York Academy of Medicine, 2 East 103rd Street, New York City.

NATIONAL MENTAL HEALTH RESEARCH FUND, CANADA.—The Canadian Mental Health Association, who have set up this research fund, announce that a grant amounting to $22,500 for the ensuing year has been awarded to Rev. Dr. Noël Mailloux, director of the Human Relations Research Centre in Montreal. The subject of investigation is the personality of delinquent boys with a view to their proper treatment in custody.

Realizing that annual or biennial government budgeting, by necessity, produces "project" or short-term research and that uninterrupted work is also necessary in mental health research, the Canadian Mental Health Association voted in 1957 to establish a fund to this end, so that researchers can work unencumbered by the uncertainty of annual budgets or red tape. Grantees are protected for the period agreed to (usually 5 years). Those who wish to devote a considerable period to research in this field may apply by personal letter to the Director, The National Mental Health Research Fund, The Canadian Mental Health Association, 11½ Spadina Road, Toronto 4, Ont.

The general director is J. D. Griffin, M.D. ; senior staff, G. A. Gamble, E. Johnstone, G. Rohn ; consultants, C. M. Hincks, M.D., W. Line, Ph.D.

HABIT

Habit is a cable ; we weave a thread of it every day, and at last we cannot break it.

—HORACE MANN.

BOOK REVIEWS

Encyclopedia of Morals. Edited by *Virgilius Ferm.* (New York: Philosophical Library, 1958, pp. 682. $10.00.)

Johnson says that morals (noun, without a singular) is "the practice of the duties of life; behavior with regard to others." The Latin origin is *mores* which simply means manners. In common use morals is likely to mean not simply manners but good manners, sometimes even with a religious overtone. The theoretical aspect of communal living is the province of the philosopher while the common practices of ethnic groups in their daily life fall to the anthropologist. It is he who observes the beginning of religious beliefs and practices.

This encyclopedia covers the whole range of human attitudes; it includes the doctrines of the major religions insofar as they do not over-emphasize supernaturalism "as over against the day-to-day existence of the natural order." The material of the book is contributed by 52 carefully selected authors from a dozen fields, philosophy being in the majority, with anthropology and religion or theology following. The leading colleges and universities of America are represented by this panel of writers.

The subject matter is arranged alphabetically, with many cross-references, thus assuring access to almost any topic about which the reader may seek information whether it is given a separate alphabetical entry or not. Major topics and important personalities are given fairly extended treatment in their regular alphabetical order.

Thus the first longer item, Aboriginals of N. Australia, is given 8 double-column pages. Then, after 101 title entries with references to topics under which the subjects are treated, follows a 12-page article on Thomas Acquinas. Other longer items under A, are Aristotle (9 pp.), Augustine (6 pp.), Aztec morals (4 pp.). If one wants to find out about atheism, the title entry refers, curiously enough, to Spinoza (the "God intoxicated"), (8 pp.). Here we learn of Spinoza's excommunication as a heretic by the Jewish authorities in Amsterdam, and of the storm that broke over his head when he published his "blasphemous," "godless" book, *A Politico-Political Treatise*, wherein he declared "that freedom of thought and speech not only may, without prejudice to piety and the public peace, be granted; but also may not, without danger to piety and the public peace, be withheld." Spinoza's masterwork, *The Ethics* is also analyzed here.

The last of the longer articles in this book deals, in 7 pages, with the morals of the Zuni Indians of the S. W. United States where the Spaniards found them in the early 16th century and where they still live—an area occupied by American Indians for the past 10,000 years. Ruth Benedict characterized the Zuni as "Apollonian," followers of the middle way—moderation *vs.* excess; strict ritual *vs.* mystic ecstasy; compromise *vs.* competition; community welfare *vs.* individual exaltation.

Professor Ferm has assembled a vast amount of information in his Encyclopedia which will throw light on almost any subject in human experience in this field. It is an excellent book of reference, exemplifying the Johnsonian definition of morals. By alphabetic accident the book begins and ends with societies called primitive or savage. Between these are discussed the mores of the partially civilized peoples of the world, thus completing the picture of human society to date.

C. B. F.

The Anatomy of the Nervous System. Its Development and Function. 10th ed. By *Stephen Walter Ranson, M.D., Ph.D.* Revised by *Sam Lillard Clark, M.D., Ph.D.* (Philadelphia and London: W. B. Saunders Co., 1959, pp. 622. $9.50.)

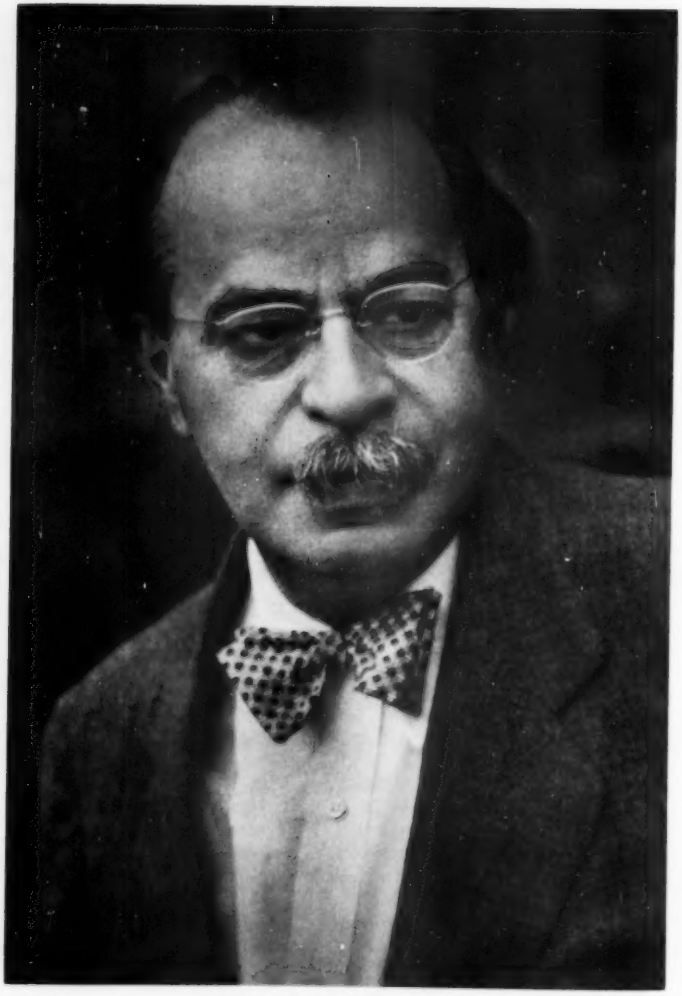
Since this textbook first appeared in 1920, it has held its pre-eminent place with students and teachers of neuro-anatomy. The present reviewer welcomes this opportunity of acknowledging his debt to Ranson as the book on which his undergraduate lectures have been based since 1923.

The book has become a little stouter over the years but, under Dr. Clark's skilful guidance, this has been kept within bounds. This edition contains only 41 more pages than the previous 1953 revision.

The chapter on "Meninges and Blood Vessels" has been expanded, mainly by 3 additional pictures, to emphasize the increasing importance of angiography and venography. Six electron micrographs have been added to the chapter "Neurons and Neuroglia." New material is also found in the "Rhinencephalon" and "Cerebral Cortex" chapters.

The quality of both the black and white and the coloured illustrations is improved.

Eric A. Linell,
University of Toronto.



GREGORY ZILBOORG

IN MEMORIAM

GREGORY ZILBOORG—A MEMORIAL
1891-1959

Genius, it is said, is intensity and its boon is to make its possessor independent of situations and able to think in large and varied categories. Also, in its turbulent career genius is fated to excite emotional responses in its beholders, among them admiration, usually unexpressed; antipathy, usually openly expressed; envy, disguised; and occassionally loyalty and affection, which, when once called forth, are held deep and lasting. Gregory Zilboorg was of the species genius; he had all of its trappings and he called forth all the responses connected with it. When he died on 17 September, 1959, American psychiatry lost one of its most brilliant, stimulating and colorful figures.

Born in Kiev, Russia, in 1891, his was a veritable story book career. Before he was twenty-five years old, he had served two years in the medical corps of the Czar's army, received a medical degree in St. Petersburg, participated in the Russian revolution of March 1917, become Secretary to the Minister of Labor in the Cabinets of Prince Lvov and Alexander Kerensky, and been dismissed by the Bolsheviks following upon their successful coup in November, 1917. Eventually, like numerous other intellectuals, he was hounded from Russian shores.

Upon his arrival in this country, Zilboorg supported himself by lecturing, writing and translating for the theatre, while he studied medicine for the second time at Columbia University. The medical degree from Columbia was granted in 1926 and he began his psychiatric career as a member of the staff of Bloomingdale, which is now known as The Westchester Division of the New York Hospital. He remained there until 1931, with time out for psychoanalytic studies at the Berlin Psychoanalytic Institute in 1929-30. From 1931 on he was engaged in the private practice of psychoanalysis and psychiatry in New York City.

To list Dr. Zilboorg's contributions to clinical psychiatry and the honors accorded him is an encompassing task. Among his major works should be mentioned his excellent studies of postpartum psychosis, of suicide, and of that form of chronic schizophrenic reaction which he designated "ambulatory schizophrenia." As testimony to his versatility and his capacity for thinking in varied categories, the lectureships awarded him were diverse and numerous. To mention but a few, he was Noguchi lecturer at Johns Hopkins University in 1935, Associate in Psychiatry at Catholic University, 1944-46, Gimbel lecturer at the University of California in 1947, Issac Ray lecturer at Yale University in 1953, and first Academic lecturer at the annual meeting of the American Psychiatric Association in 1957. Interspersed among these were a number of lectures delivered in Paris, London, Madrid and Rome.

In 1935 Zilboorg's book *The Medical Man and the Witch During the Renaissance* appeared. Six years later his epoch making contribution, *The History of Medical Psychology*, was published and by means of it his place in the ranks of medical historians became assured. Then, in 1943, the brilliant work, *Mind, Medicine and Man*, was printed and one year later the Centennial Volume of the American Psychiatric Association, entitled *One Hundred Years of American Psychiatry*, with Zilboorg as co-editor, took its place among the required readings of psychiatric literature. In 1953, as fruit of his Isaac Ray Lectureship award, his book *The Psychology of the Criminal Act and Punishment* was published.

In his hospital and teaching career Dr. Zilboorg's appointments and accomplishments were likewise diverse. He taught psychotherapy at Butler Hospital, an institution which he loved and in which he had created the Isaac Ray Library. He held professional rank in several New York medical schools and was Chairman of the Consulting Delegation on Criminology to the

United Nations. One honor which he held in high regard was the degree of Doctor of Science which was awarded him by the University of Dublin in Ireland in 1954.

If it is true that capacity is but an aptitude to receive, then Gregory Zilboorg had a capacity which was infinite, one which sought satisfaction by the mastery of the widest variety of skills. He was a psychiatrist, a psychoanalyst, a criminologist, a medical historian, a linguist, a brilliant lecturer, and a writer of essays on psychological and religious issues. He had a facility for apt expression, an ability as a phrase maker, and a ready humor. Not content with these accomplishments, he became an expert photographer, a craftsman with wood, an excelient cook, and a bibliophile. It is not without reason that Mora spoke of him as a "Renaissance Man."

It is interesting, as Mora also points out, that as he became older his introspective urge seemed to increase and his life became a progressive saga from outward interests (politics, drama) to psychological and social interests (psychoanalysis, criminology and medical history) and thence, in the last few years of his activity, to that most internal of all interests, a profound concern with affairs of the spirit and religious and moral issues. Concomitant with this latter interest, he lectured extensively at Fordham University and Woodstock College in Baltimore and collaborated in the commemorative volume for Pius XII in 1956 and wrote several important papers dealing with religion and psychoanalysis. His volume entitled *Freud and Religion* was published in 1958.

To see this complicated and brilliant man at his best, one should have seen him with his lovely wife and the young family, of which he was so proud. Or perhaps one might have caught glimpses of him in quiet conversation in out of the way places—in restaurants in Europe, or in some place where the klieg lights were off and the tensions removed. Whereas in the arena of psychiatric meetings he reacted with unbelieving and hurt surprise to those who challenged him, in the situations mentioned above his genius became apparent and a brilliant, warm, understanding and kindly man emerged.

Upon his return from Europe in July, 1959, his condition was diagnosed is inoperable. He knew about it and, with a quiet dignity, he set about to put his affairs in order. He was subdued by the imminence of death, but there were no complaints and no lamentations. This writer sat with him as his end approached and was moved by the clarity of his thought as he discussed various philosophical problems and recounted how he, in his "rebellious Dostoyevskian fashion," finally arrived at his deep spiritual convictions. His last psychiatric concern was an admonition regarding the protection of psychologic test records of students from improper hands, for the student might later become the president of the university. Thus, this genius which found its own road and carried its own lamp through a turbulent career died serene and with a concern for the dignity of the individual and his right to privacy.

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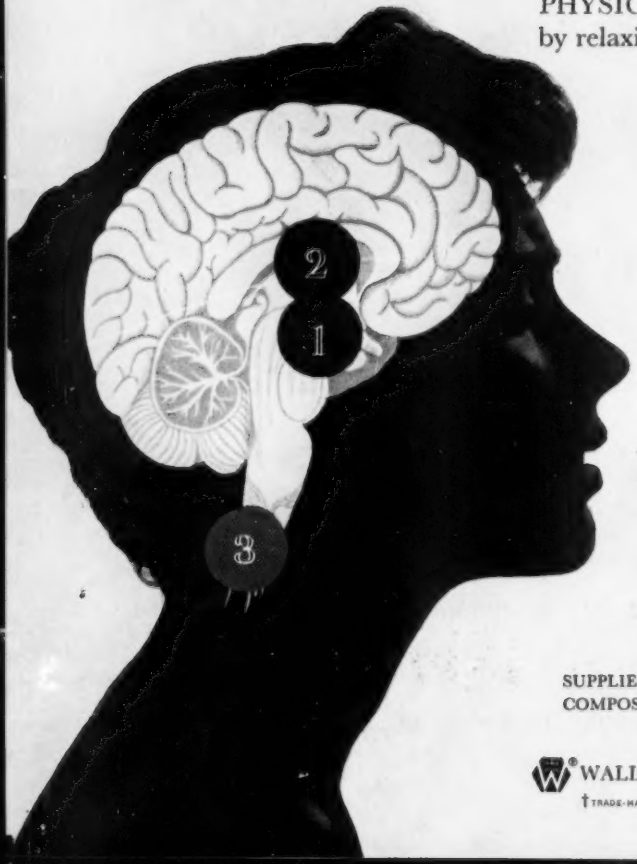

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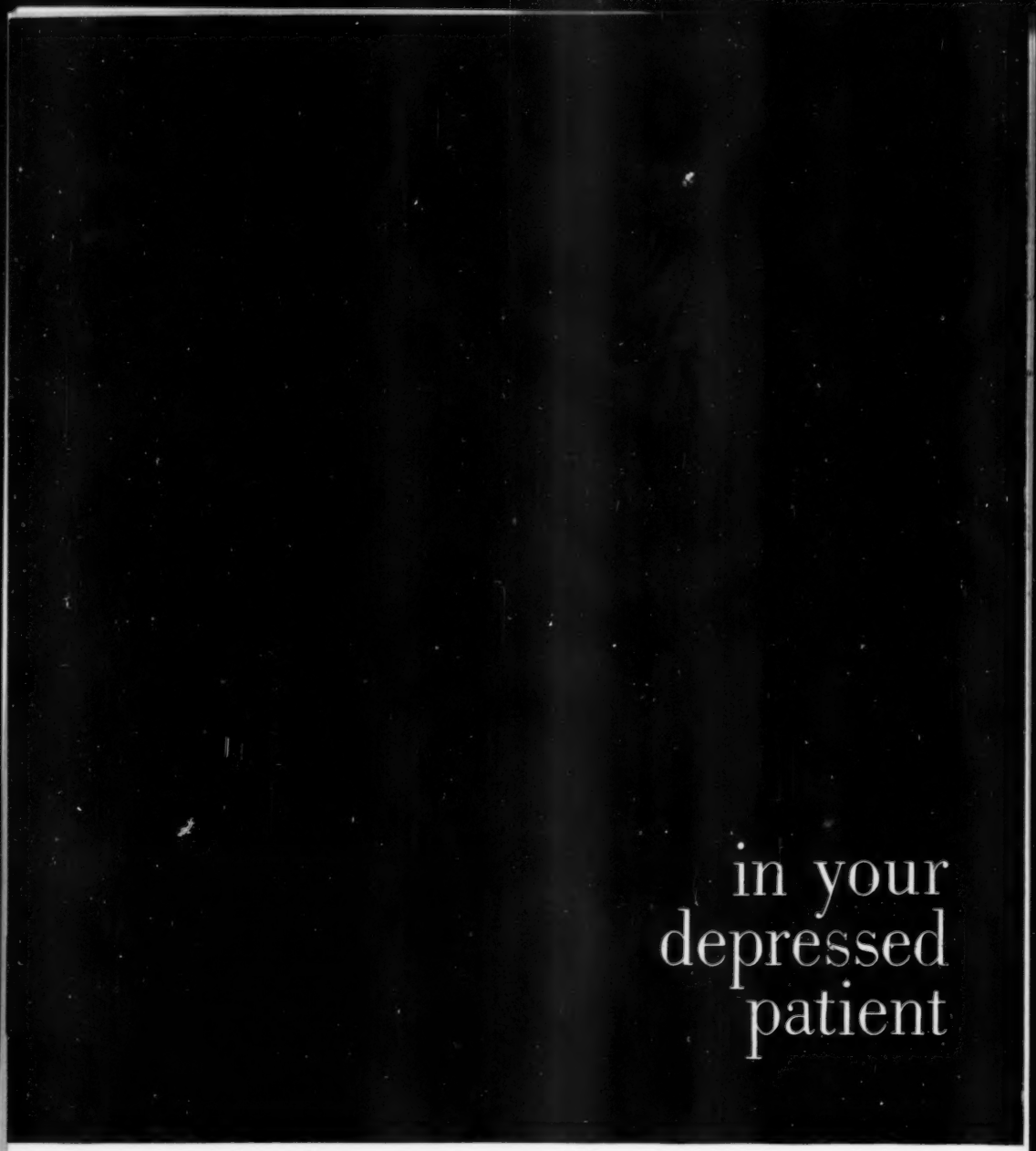

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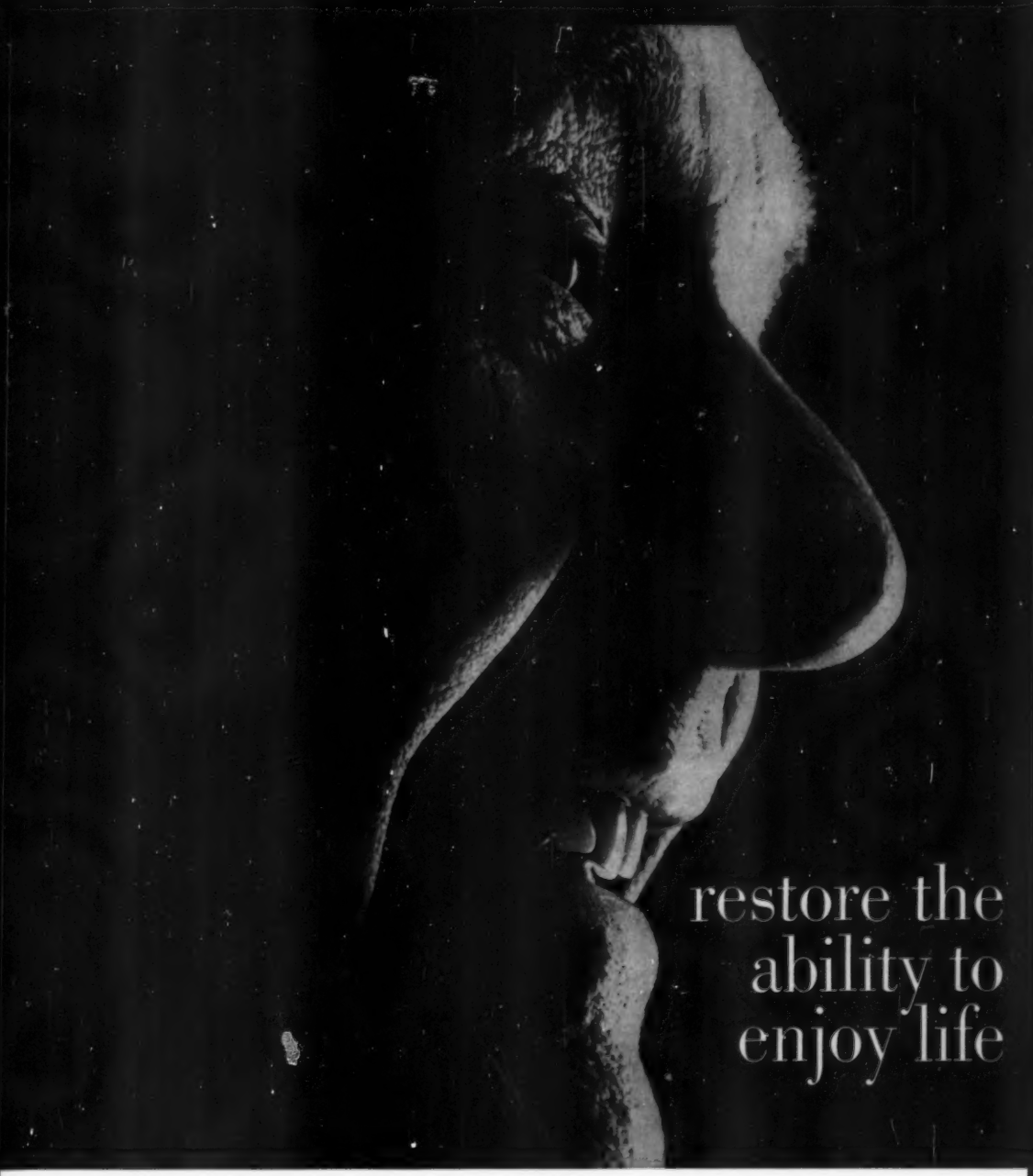

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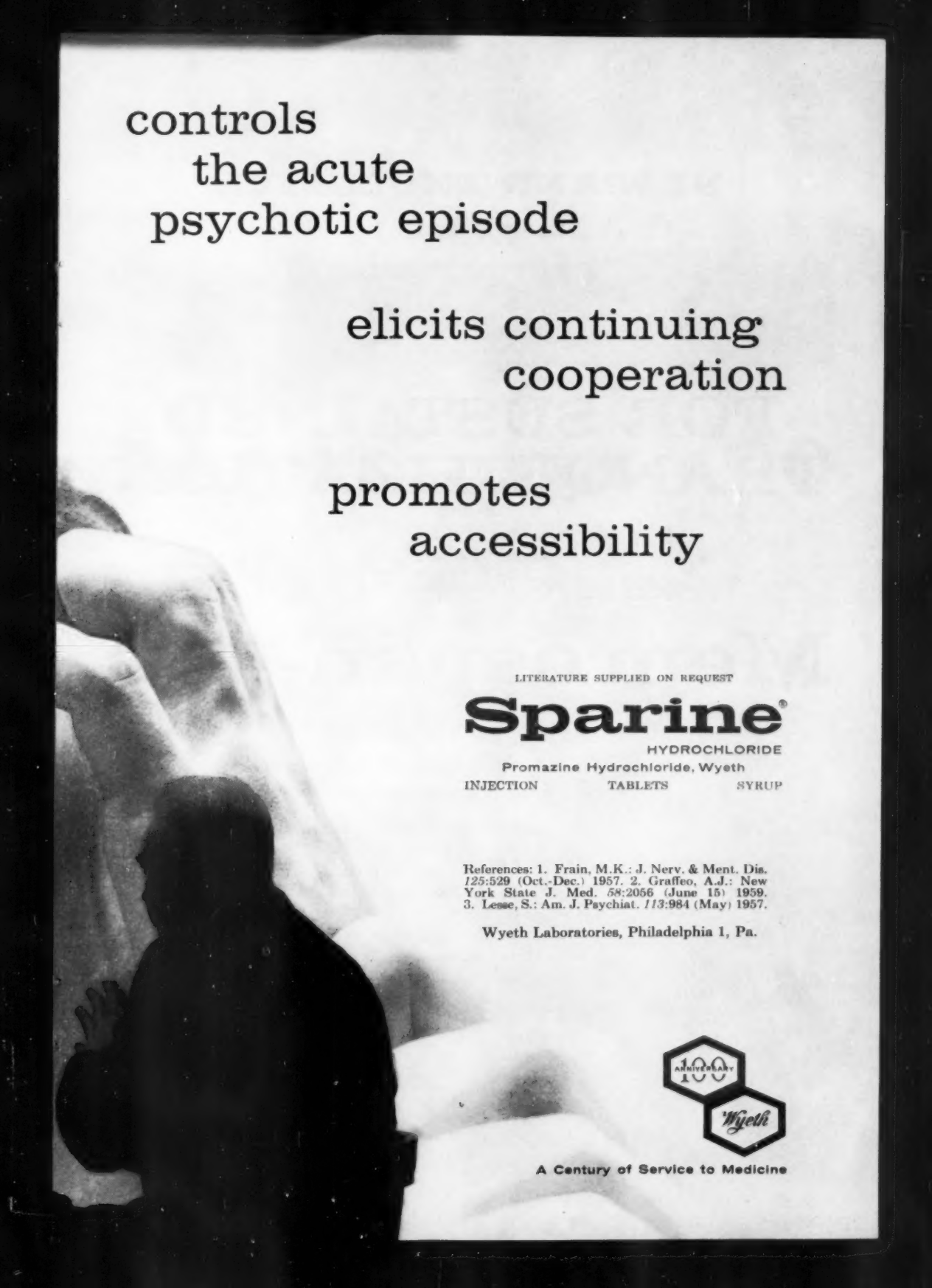
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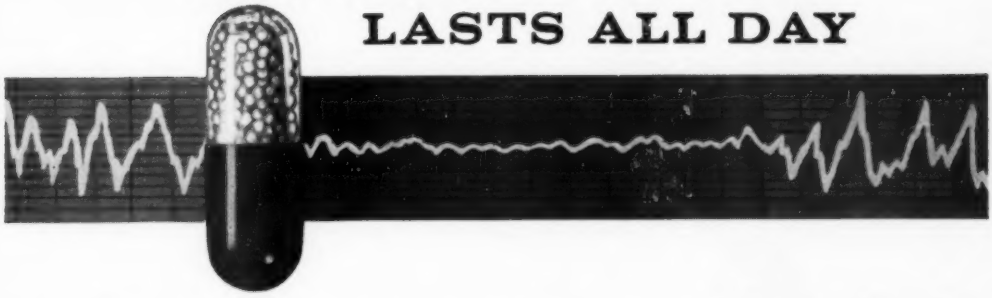

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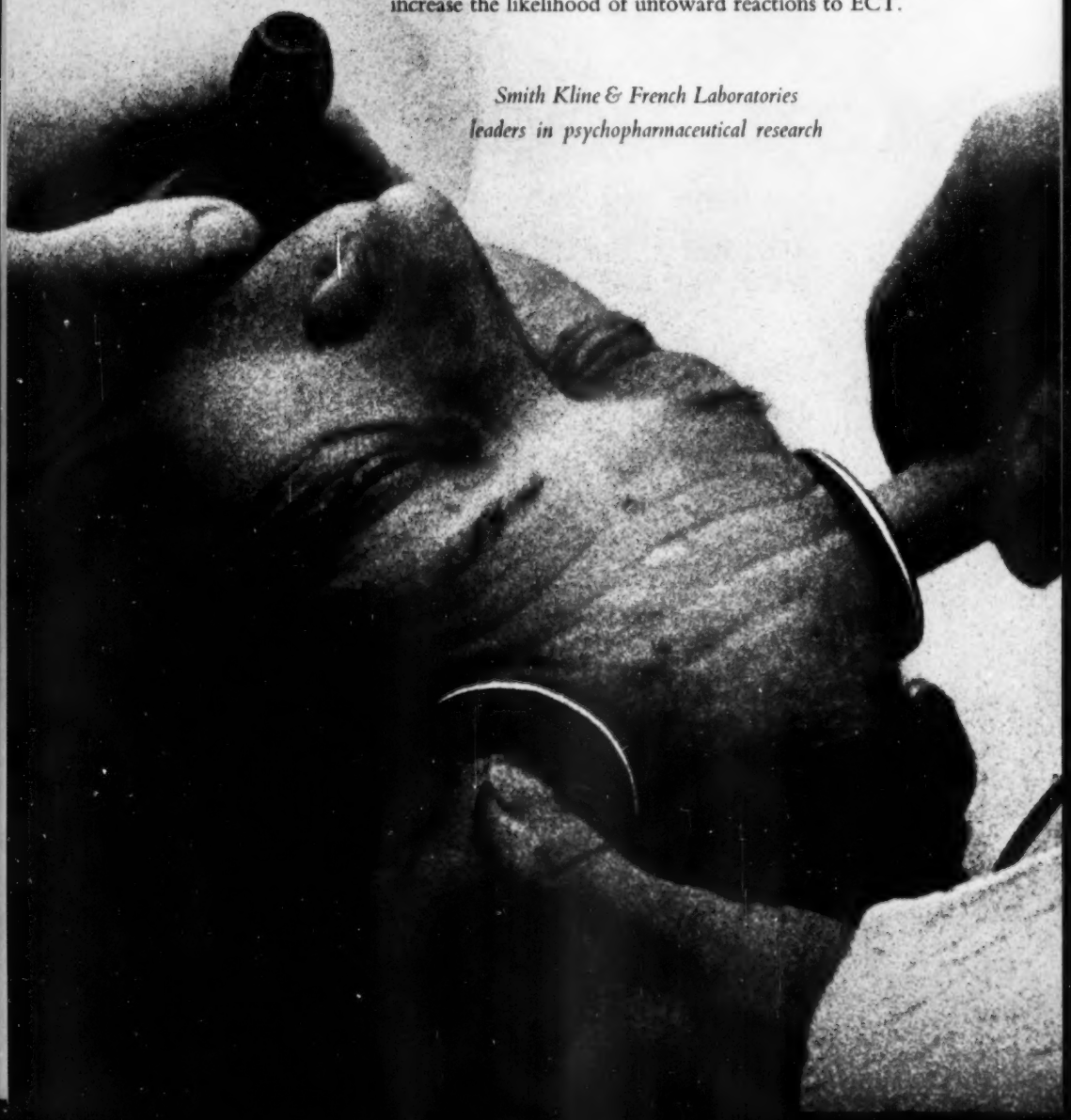

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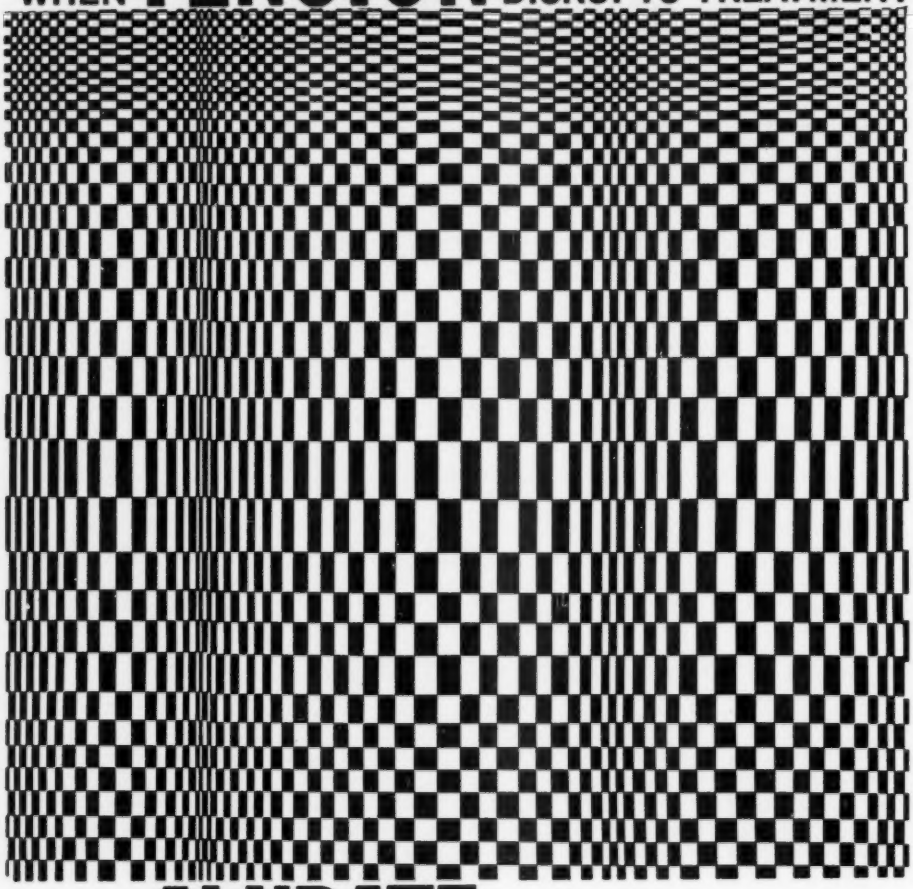

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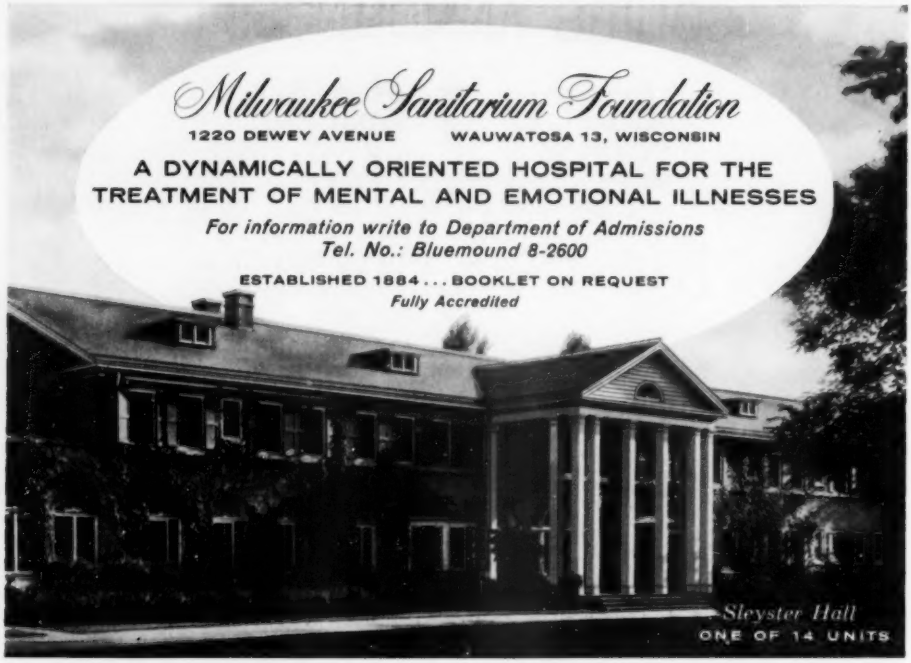
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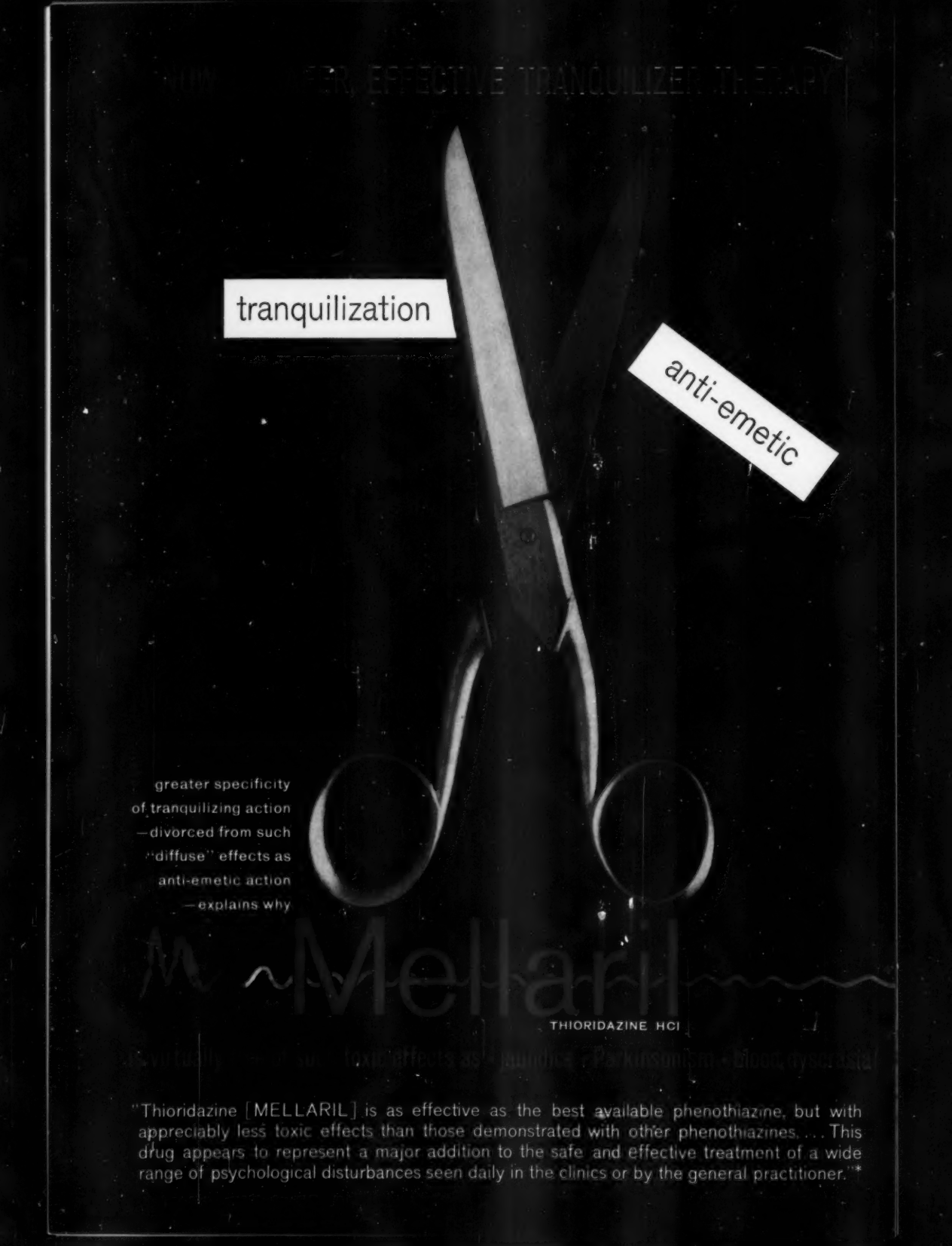

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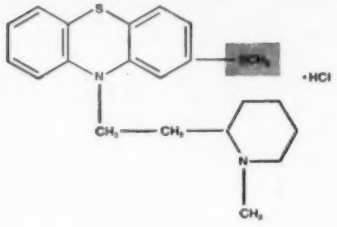

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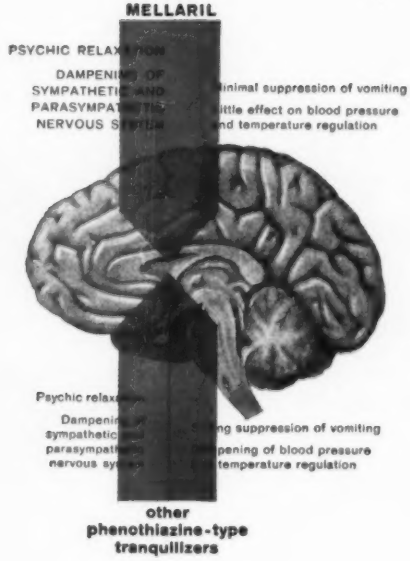

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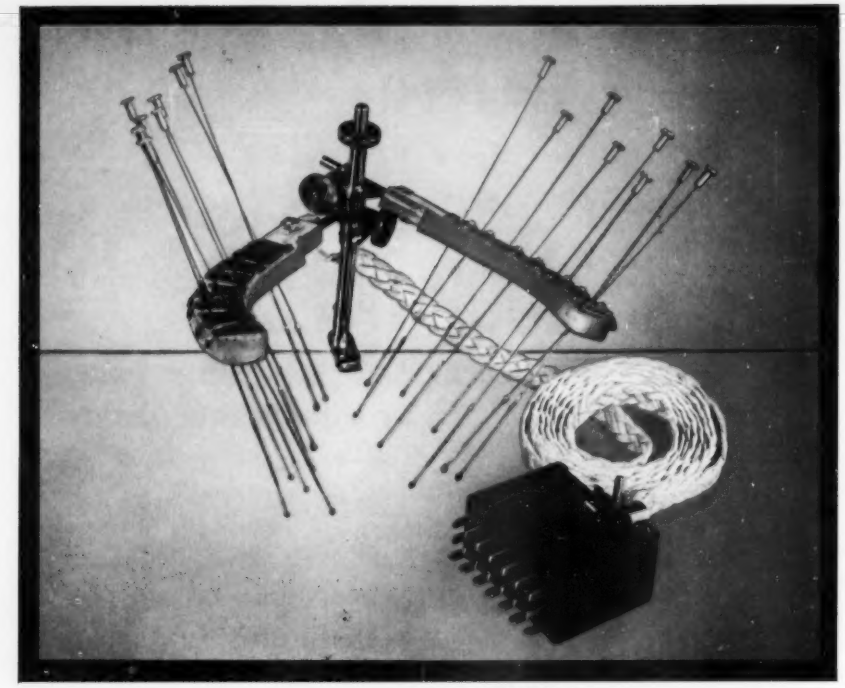

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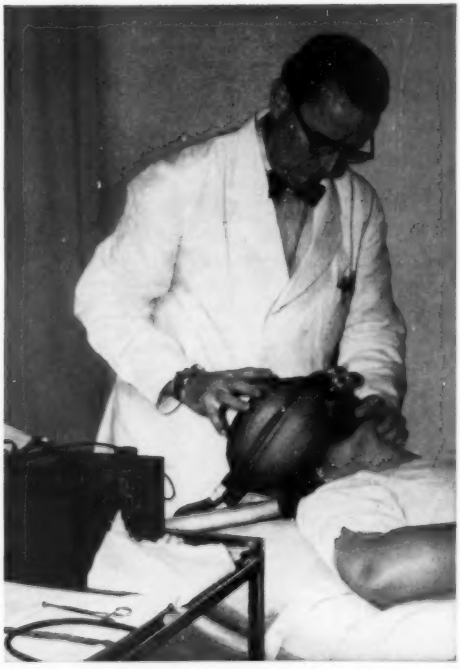

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